THE

VETERINARY JOURNAL

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Editorial.

THE ABERDEEN CONGRESS.

BEING A DISQUISITION ON DUTY.

> "I hold every man a debtor to his profession: from the which as men of course do seek to receive countenance and profit, so ought they of duty to endeavour themselves by way of amends to be a help and ornament thereunto."

IN these quaint words, pregnant with wisdom and shrewdness, does the great philosopher Bacon give utterance to a thought which must have passed with more or less distinctness through the consciousness of those who were present at the Congress. And the thought, whether it shaped itself in the same luminous way, or remained dim, incoherent, and disquieting, must have opened up further vistas of thought and contemplation which did not appear seductive or pleasing, but which compelled an entrance into them, or at least refused to vanish. Some of my colleagues came from great distances, and probably at great trouble and expense to themselves, to support me as President of the Veterinary Section, and the presence of such men was a source of much pride and satisfaction to me, both as President and as a veteran of the profession. But their number was small as compared with possibilities. These honourable colleagues were certainly entitled to feel that they had manfully complied with their duty as set forth by Bacon's maxim, but they must have felt also that their very presence accentuated the apathy of the profession and brought into relief the paucity of our numbers, or at least the number of those who possess public spirit and professional zeal. Had there been no Veterinary Section, doubtless we should have heard many and loud complaints as to the indifference and contempt of the public or of the scientific world for our branch of scientific work: had the Aberdeen authorities treated us disdainfully, and left us to come to the Congress or not as we chose, we might as a body have justly refused to have anything to do with it: had the Royal College declined to recognise the Congress, members of the profession would have been entitled, indeed almost bound by honour, to absent themselves from its deliberations. But none of these conditions existed, and I cannot but deplore the want of enthusiasm

amongst my colleagues. The Aberdeen University authorities gave us a courteous and cordial invitation, and put their buildings and general resources at our disposal: we were not tacked on ignominiously to the other branches as an insignificant factor in scientific problems, but had a section to ourselves, and, as a matter of fact, were well and honourably treated. Further, the Royal College in appointing my humble self as its representative plainly indicated, as I think, to the veterinary profession in particular, and to the scientific world and the public generally, that in delegating this honourable office to one of the fathers of the profession it was doing all it could towards acknowledgment of the proffered kindness. It is not for me to say whether my address was of great or of little value to those for whom it was intended—I leave that to be judged by my colleagues in the profession,—but it was certainly the outcome of much thought and study. What grieves me is the want of enthusiasm in the veterinary body. Had I been a young man, anxious to gain influence and reputation, there would have been an excuse at hand for those who chose to absent themselves. Men of mature age will not sit at the feet of their juniors; they will listen to them as patrons or out of compliment, but they will not—they cannot be expected to—recognise them as typical men or as leaders, unless difference of rank makes it safe to do so; and this holds good with young and untried men even when the facts of the case seem to warrant approval and support. But surely no one will lay vanity, ambition, or self-seeking to my charge. Surely every one will acknowledge that as a teacher of forty years' experience, as a writer of books that are known—and even pirated—over the whole English-speaking world, I was entitled to expect the hearty and unhesitating support of my colleagues, young and old, rich and poor, distinguished or humble.

It seems to me that a great and brilliant opportunity has been lost, and for the sake of my profession and my old pupils I am extremely sorry. Everything was favourable to the Congress. The month was August, the typical holiday month, when the weather is pleasant and the days are still long, and the very nights in the far north are glorious; the place of meeting was Aberdeen, a beautiful, well-built city, whose inhabitants, polished and well-bred, are always ready to receive courteously strangers who bring proper credentials. No one can complain of want of travelling facilities to the northern city—indeed, we all know it was the end and object of the Railway Race of 1895; it is a point at which three important lines converge, and it can also be reached by sea. Everything was favourable to a large turn-out of veterinary men. In August there is generally a lull in disease and sickness, and medical men and veterinarians can most readily in that month take their holidays. Why did veterinarians not come to visit the venerable northern university? Nay more, why did they not come and bring their wives and daughters with them to enliven the pro-

ceedings? One is always thankful to see a bit of bright ribbon—not to speak of the pretty face it adorns—at these solemn conferences. No one can tell how much the female part of our confraternity has lost by the neglect and apathy of its male appendages; no one can tell how many matrimonial chances have been allowed to pass away for ever. I really do commend this aspect of the question to the ladies. Apart from everything else, the opportunities for flirtation were unbounded, as they always are at such meetings; the male specimen of the scientific *genus homo* seems more susceptible, if possible, to the charms of the fair sex than the ordinary mortal.

Seriously speaking, it is rather saddening for me to find on reference to the register of the Royal College that there are in the county of Aberdeen about forty-one veterinary surgeons, whilst in the neighbouring counties of Perth there are thirty, Forfar twenty, Banff twelve, and Stirling ten, not to speak of the numerous members who live in Edinburgh and Glasgow, and the south and west of Scotland and the north of England, who could easily have taken a train from their homes which would land them at Aberdeen in five or six hours. How many old pupils of mine there are in these places I do not know, but there must be a great many, and they might have turned out to my support. I have preached to the readers of this Journal without ceasing of the necessity of supporting the claims of the profession, and the nation is becoming slowly aware of the validity and reality of these claims, but what is the public to think of us if we neglect such opportunities as the Aberdeen Congress? It is very desirable that in the future veterinary science should form part of a university curriculum, and that our students should obtain a university diploma, but more zeal must be shown if this is to be accomplished, and more devotion to the cause of science. The possibilities open to the veterinary surgeon in the fields of pathology, zoology, biology, chemistry, and botany—to mention no others—are unlimited, whilst as consultant physician of our flocks and herds, of the stud and of the stable, his usefulness and importance are bound to increase with the increasing importance of these national treasures. But don't let us say time will cure that, or, that will come all right with time, and then fold our hands and go on dozing comfortably. The awakening may be a very rude one and may come when we least expect it. Time itself is no force, and to leave things to time is merely to convict ourselves of indolence or acknowledge ourselves desperate. An intelligent agent is required for the accomplishment of every great object, and there must be a conscious effect and a persistency of endeavour. Had there been no Martin Luther there would have been no Reformation, nor would there have been if Luther's efforts had not been persistent, and if he had not been well supported by a band of faithful followers. Let this illustration suffice, and let my readers ponder well the words of the great Chancellor which

stand at the head of this paper. It is not given to every man to be an ornament to his profession, and, indeed, a few of these suffice; but every man may be a help, and the very humblest may prove at some critical juncture to be of inestimable value. Engineers have a formula, the strength of a chain is simply the strength of its weakest link; if our weakest link is a strong and a tough one, the whole chain must be very strong. If some of my readers cannot contribute much to the scientific work of the profession, they may any rate save up their pence and make a brave show at the next Health Congress.

Royal College of Veterinary Surgeons.

July Examination in London.

At Meetings of the Board of Examiners in London on July 4th, for the Written Examination, and on and between the 12th and 16th inclusive for the Orals and Practical Examinations, the following gentlemen passed their Final Examination and were admitted Members of the Royal College of Veterinary Surgeons.

Three Years' Course.

Mr. G. Sykes. | Mr. R. Peddie.

Four Years' Course.

Mr. D. A. Aitchison.
,, H. H. Aldred.
,, P. V. Beatty.
,, P. T. B. Bassel.
,, W. J. Boyd.
,, F. W. Cousens.
,, H. Cooper.
,, R. J. Collings.
Mr. F. Crossley.
,, J. Chalmers.
,, J. A. Dixon.
* ,, E. S. Gillett.
,, K. Hewlett.
The Kumar Shei Jethiji.
Mr. F. E. Mason.
,, H. A. Reid.
Mr. E. A. Ryan.
,, E. L. Liddall.
,, J. Share Jones.
* ,, S. E. Sampson.
† ,, H. Thackeray.
* ,, G. Tucker.
,, C. Tyler.
,, L. M. Verney.

The following passed their Third Examination:

Mr. J. Adamson.
* ,, J. T Angwin.
,, J. R. Baxter.
,, G. S. Bruce.
,, W. H. Bradley.
† ,, W. H. Chase.
,, W. H. Edwards.
,, H. H. S. George.
,, L. G. Gryspeerdt.
,, J. Harrison.
Mr. A. W. Hodgson.
* ,, F. Hopkin.
,, H. S. Howard Jones.
,, H. D. Jones.
* ,, A. Littlejohn.
,, G. May.
,, R. E. Mosedale.
* ,, E. S. Oliver.
† ,, W. T. Olver.
Mr. R. Paine.
* ,, E. M. Perry.
* ,, S. F. G. Palein.
† ,, F. W. Robards.
,, R. J. Sargent.
,, A. G. Saunders.
,, W. E. Schofield.
* ,, E. C. Webb.
* ,, E. P. Argyle.

The following passed their Second Examination:

* Mr. S. Dodd.
,, J. C. Fitzgerald.
,, N. Gilford.
* ,, T. S. Green.
* ,, A. Goodall.
* ,, J. R. Godbold.
† ,, H. E. Gibbs.
,, W. N. Jürgenson.
Mr. M. F. Kelly.
,, W. P. Loft.
,, L. M. Magee.
* ,, G. P. Male.
,, G. E. Owen.
,, F. O. Parsons.
,, G. H. Rainforth.
Mr. G. Sutton.
,, P. G. Short.
,, C. H. Sheather.
,, C. W. Townsend.
* ,, H. X. Turnbull.
,, A. H. Watson.
* ,, W. G. Wragg.

The following passed their First Examination:

Mr. G. G. Brown.	†Mr. A. N. Foshers.	Mr. H. P. Lewis.
,, J. C. Broad.	,, R. C. Glover.	* ,, H. Mason.
* ,, T. E. Burridge.	,, J. G. M. Hughes.	* ,, E. O'Reilly.
,, T. Bowett.	* ,, H. J. Holness.	,, F. C. O'Rorke.
,, C. Crowhurst.	,, R. J. Hills.	,, J. P. Penhale.
* ,, W. Cawthorn.	,, T. S. Hunter.	,, F. R. Staple.
,, E. T. Clemow.	† ,, A. S. Leese.	,, V'det. Woodley.
,, G. A. Dibben.	,, A. R. Lewis.	* ,, W. H. Walker.
,, J. M'Rea Frost.		

Marked thus * passed with Second Class Honours.
Do. † do. First do.

ARTHUR WM. HILL.

THE FITZWYGRAM COMPETITIVE EXAMINATION.

The donor of these prizes recently altered the scheme for these examinations, and the first examination under the new regulations was held at the Royal Horse Infirmary, Woolwich, on the 20th inst.

There were eight competitors, and the examination being almost wholly *vivâ voce*, was concluded in one day.

The following are the marks and prizes obtained by the candidates:—

Name.	College.	Marks.	Prizes.
W. G. Burndred,	New V. Coll., Edin.	1571	1st £50
T. Runciman,	New V. Coll., Edin.	1492	2d £25
S. E. Sampson,	Royal V. Coll., Lond.	1465	3d £15

Honourable Mention.

Name.	College.	Marks.	Prizes.
B. Runciman,	New V. Coll., Edin.	1419	£2:10:0
R. J. Collings,	Royal V. Coll., Lond.	1401	£2:10:0
E. S. Gillett,	Royal V. Coll., Lond.	1396	£2:10:0
H. Thackeray,	Royal V. Coll., Lond.	1336	£2:10:0
Thos. Hogg,	Dick V. Coll., Edin.	1235	—

The Examiners were Lt.-Colonel J. A. Nunn, A.V.D., and Mr. Sidney Villar.

ARTHUR WM. HILL,
Hon. Secretary.

Original Papers.

SOME PECULIARITIES IN THE LIFE-HISTORY OF MICROBES.

Being the Presidential Address in the Veterinary Section of the Royal Institute of Public Health Annual Congress held at Aberdeen 2d to 7th August 1900,

BY PRINCIPAL W. WILLIAMS, F.R.C.V.S., F.R.S.E., J.P., ETC.

IT is my intention, with your permission, to refer to a subject which I think presents many interesting points, that is to say, to certain peculiarities, or rather what might be termed vagaries, in the life-history of microbes;

how some microbes induce disease in one class of animals only; how others induce disease in many, whilst others again may induce pathological conditions in almost all, including man. For example, Koch found that the inoculation of rabbits and field-mice with the blood of septicæmic mice failed to induce disease, whereas in ordinary inoculation with putrid material septicæmia was easily induced.

Another interesting fact was discovered in connection with these experiments, viz.—after the introduction of putrid blood into the common house mouse, in addition to the ordinary septic bacteria,, a micrococcus was found around the seat of the inoculation. This organism is of rapid growth, and forms irregular chains. These were not found in the blood of the inoculated mice, and by inoculation with this blood the septic organism alone was found. Inoculations with material taken from the seat of the inoculation were successful in producing both forms of the disease, and the virulence of the serum from the subcutaneous cellular tissue containing these micrococci was just as marked as that of putrifying blood.

Attempts were made to separate the bacteria and micrococci from each other, but for a long time with no avail; but chance led Koch to the proper method. A field-mouse which he had already found to possess immunity from septicæmia was inoculated with the bacilli and the chain-like micrococci, in the expectation that neither would develop; but this expectation was not fulfilled, for though the bacilli underwent no development, the micrococci increased and spread in exactly the same manner as had been the case in the domestic mouse. Beginning at the point of inoculation in the root of the tail, the gangrene spread onwards along the back, passing deeply into the muscles, and downwards on both sides of the abdominal walls. The animal died three days after inoculation. The parts affected with the gangrene contained chain-like micrococci in extraordinary numbers, but the blood and the interior of the organs were, on the other hand, quite free from them. From this field-mouse other mice, both house and field, were inoculated in various successive series, and with always the same result, namely, that only chain-like micrococci and progressive gangrene were obtained.

Now this is very interesting, but impossible to comprehend. Here we have two animals closely resembling each other, the one succumbing to both septicæmia and progressive gangrene, the other proving to be resistant to the septic bacillus, but succumbing to the coccus.

Now, again, take the clinical history of glanders and farcy, which is most remarkable,—the disease being communicable from the horse and mules to field-mice, guinea-pigs, the cat tribe (including lions and tigers), dogs, goats, rabbits, sheep, and man, but cattle are quite immune. No case is yet recorded of glanders having been transmitted either experimentally or otherwise to them, and in the list of immune animals the house-mice, white mice, rats, and domestic fowls are included. It seems strange that cattle are immune, for glanders and tuberculosis, so common and fatal to cattle, are exceedingly similar in their pathology. The bacillus is almost similar; the nodules are similar; both diseases are characterised by a high temperature, and both react to inoculation with their ptomaines, viz., mallein and tuberculin. Here we have two diseases so similar that glanders has been described by various Continental writers as tuberculosis of the horse, and yet the disease has not been transmitted from the one to the other. In a similar manner tuberculosis is not easily conveyed to the horse; indeed

tuberculosis is very rare, and is, so far as my experience goes, generally communicated by feeding with cow's milk. Another remarkable fact is—tuberculosis seems to lose its contagious character in the horse, although, remarkable to state, the bacilli are much more easily detected and more numerous than in the cow. These peculiarities require further investigation, and particularly the seeming non-infectious character of equine tuberculosis. Pondering over this matter, I have often thought that perhaps a vaccine against tuberculosis might be found in the serum of the horse.

Anthrax.—In this country this disease is very rarely seen except in cattle, but in them, under the name of splenic fever, it is not an infrequent scourge. It is stated that on the Continent it is very common amongst sheep. If so, we may congratulate ourselves that the atmosphere, soil, and water of our dear native land have some advantages over those of other countries. Again, in this country anthrax is only common in cattle, rarely in the horse, and, so far as my experience goes, never in the sheep. Some diseases of sheep have been described as anthrax—braxy, for example—but upon closer investigation braxy has been found to be one of the forms of septicæmia, and due to septic causes. Then, again, what is commonly known in certain parts of Scotland as black spaud—black shoulder—a fatal disease amongst lambs, supposed to be anthracoid, is simply due to septic infection caused by insanitary surroundings during the lambing season. For example, if ewes are lambed in sheds, as is often the case in cold weather, their bedding and surroundings soon become contaminated with decomposing fœtal membranes, blood, &c., and even the clothes of the attending shepherds become tainted and a source of infection.

Now anthrax, communicable to various animals by direct inoculation, seems non-infectious even amongst cattle in this country, but it is stated to be infectious on the Continent.

Anthrax is communicable from cattle by inoculation to sheep, guinea-pigs, white mice, rabbits, the horse, and man; whilst cats, dogs, and most birds are almost immune.

Man, it is now stated, is but slightly susceptible, and the manifestation of the disease is different to that seen in the lower animals, and is usually a local affection—malignant carbuncle—and only at times gives rise to a general infection.

Colin found, however, that in fowls immunity was due to their natural high temperature—105° F.—and that when these fowls were plucked, and the temperature reduced by immersing the plucked fowl in cold water, the disease was easily induced. We can easily understand the influence of temperature, for it is found that a higher temperature—37° to 40° C., 98·36°-104° F.—checks all further developments. From this very interesting fact I think we are justified in concluding that the high temperature of the animal body, while suffering from anthrax, is a resisting attempt to destroy the virus.

Pleuro-Pneumonia.—In this disease we may note one or two interesting facts:—*1st.* That the disease is peculiar to bovines, gaining access to the system through the lungs only, for inoculation has totally failed in inducing the disease. It is very true that certain lesions are found surrounding the point of inoculation which bear a great resemblance to, in fact are almost identical with, those found in the lungs, viz., the presence of a large quantity of serosity in the tissues, coagulation of the blood in the vessels of the parts, with frequent supervening gangrene in addition to fibroid enlarge-

ment with great swelling, but no specific lesions have been found in the lungs. *2d.* Inoculation gives perfect immunity, and for a long period of time.

As an instance of this I may quote what occurred in our own practice. Some years ago forty cows were vaccinated, and none reacted. Between eighteen months and two years afterwards pleuro was brought into the byre, one newly bought cow being found affected. In the meantime universal slaughter had been brought into force, and amongst the herd some dozen or so of the previously vaccinated herd remained. All of these were found to be perfectly free from pleuro, whilst several others had the disease in varying stages. A knowledge of the preventive effects of inoculation is now the means of saving many of our Colonial herds.

Whilst pleuro, so far as my experience goes, is confined to cattle, it is stated to affect goats in South Africa, and that preventive inoculation is carried out with great success; and it is also stated to attack camels, buffaloes, bisons, and yaks, but the evidence is not clear.

Foot-and-Mouth Disease.—From pleuro-pneumonia we naturally turn to foot-and-mouth disease, and here we have a comparatively benign disease, except among very young animals. This disease is most frequently seen in cattle, sheep being at one time supposed to be immune; but this was proved to be an error, the disease very often committing great havoc amongst sheep.

Something in our climate seemed obnoxious to this disease, for it soon disappeared; but we are not to conclude from this that it did so in all instances, for to my own knowledge outbreaks have occurred in sheep after about a year's freedom from it. In one case foot-and-mouth disease broke out in a large flock of sheep in the month of August. It disappeared without causing great destruction. One of the shepherds, after the disappearance, put his canvas clothing to one side until the lambing season. In a few days after the lambing commenced the disease broke out and destroyed about 300 lambs on this sheep farm, but fortunately it spread no further than this farm.

Foot-and-mouth disease, most frequently seen in cattle and sheep, also attacks pigs and goats, and it is stated horses, cats, and birds, less frequently, and one author states human beings became easily affected. If this be the case, many of the elder members of the profession would be able to testify to it. Reports were now and then spread that men did contract the disease, but upon due inquiry these reports turned out to be incorrect, but deer, camels, llamas, giraffes, antelopes, aurochs, buffaloes, &c. are liable to it.

If time allowed I might refer to rabies as being communicable to all warm-blooded animals, distemper in dogs, and swine fever, but I feel that time will not permit.

I must, however, refer to the fact, which has been lately confirmed by many observers, that ordinary innocuous organisms, both animal and vegetable, become virulent when transferred from a low form of host to a higher animal. I refer more particularly to Texas fever as seen in many countries, and to louping-ill in sheep, as seen in this country.

Gentlemen, much has been written about the influence of the mosquito in conveying the virus of malarial and yellow fevers to man. At one time such an idea would have been—in fact was—laughed at, but it is now an accepted fact, and I am bound in justice to myself to repeat to you that I was the first to discover it. In 1881-2 I was requested to report on

louping-ill by the Highland and Agricultural Society. I commenced that investigation with a strong prejudice against the opinions of some farmers that the tick had any connection with that disease; but careful investigations brought to light that a peculiar mould was present in a jelly-like material found in the spinal canal in many, but not in all cases; but in all, the organism found in the jelly-like material could be obtained by cultivation from the blood, milk, and other fluids of the body; and further experiments in 1894 enabled me to induce the disease by inoculation.

Texas Fever.—In July 1896 I was commissioned by the Government of Jamaica to proceed to that island and report upon what was known as the Jamaican Cattle Disease. After an extensive examination of the cattle throughout all parts of the island, I came to the conclusion that I had to deal with what had been already exhaustively studied in the United States, where the experimentalists had come to the conclusion that the disease was communicated to the cattle through the medium of ticks, of which I found three kinds on the island—1st. *Ixodes ricinus*, which had been known on the island for over fifty years; 2d. *Ixodes scapulatus*, known for about thirty years, and like the former supposed to be non-injurious to cattle. In addition to these I found a third kind, viz., the *Ixodes bovis*, the tick well known in the Southern States of America, and proved to be the cause of Texas fever. Lengthened investigations of Texas fever were made by Dr. Salmon and others in Washington, and their conclusions were final and of great assistance to me. The organism found was a *plasmodium*, often found upon leaves, &c., and believed to be innocuous when eaten with the food. In louping-ill the organism is found in the form of a mucor, quite innocuous when eaten with the food, and, like the plasmodium of Texas fever, seems to attain virulent properties within the body of the tick, by which it is conveyed to cattle.

I might point out many peculiarities in swine plague, rinderpest, scarlatina, and distemper in dogs, but as our time is limited I now conclude, thanking you for your kind attention.

PRESIDENTIAL ADDRESS.[1]

BY P. G. BOND, F.R.C.V.S.

GENTLEMEN—In the first place, allow me to express to the members of the Western Counties Veterinary Medical Association my best thanks for the honour conferred in electing me as your President for the coming year.

It is a position which I will endeavour to uphold with the merit it deserves, by showing that interest in the advancement of our calling which we all have at heart. And having been chosen by my professional brethren, it will be my earnest desire to do all in my power to justify your kind selection during the term of office. I hardly know what subject to take to form the matter of an address, but the idea has occurred to me that as the century is drawing to a close, and a new era is about to commence, it may be not without profit that we look back at the period we have gone through whilst in the exercise of our duty, and during the retrospect, pause to inquire into the condition of the veterinary art and science as we now find it, and the state of that art as compared with the past.

[1] Delivered before the Western Counties Veterinary Medical Association at Plymouth, July 19th, 1900.

It is not my intention to give you an exhaustive discourse on veterinary science, but merely state what I may call my own experience during the time I have been acquainted with medicine, to the period embracing the past thirty years, and certain questions have risen in my mind. These questions I beg to submit for your kind consideration, and are as follows :—

1. Are veterinary surgeons better able to carry out the work for which they have studied than formerly?
2. Are we standing still in our profession or going forward, and not making sufficient advancement to cope with the time?
3. Are we of real use to the stockowner?
4. Do we do all in our power to alleviate suffering among dumb animals, which should be our first endeavour?
5. And are we better able to combat disease and sickness amongst our domesticated animals than formerly?
6. What is the position the veterinary surgeon of to-day should hold with regard to the public?

To the first question, "Are veterinary surgeons of to-day better able to carry out the work for which they have studied?" I may, I believe, answer with confidence that everything that can conduce to the restoration to health of the animals placed under our charge is brought into requisition by the veterinary surgeon of the present. To begin with, his education, pupilage, and college life is now practically the same as for the sister profession, the medical.

His term at college extending to four years, after having served a pupilage with a qualified veterinary surgeon and having satisfied a board of examiners in not less than five examinations, he at last receives his diploma. It is only fair to assume that this must be a sufficient preparation for the calling he has taken up, and is in marked contrast to the old method of learning the art. The books he now has to store his mind with, and be well versed in, are the best obtainable in pathology, histology, chemistry, materia medica, anatomy, physiology, hygiene, and the important matters relating to diet, together with proper stable management, the art of shoeing, and the examination of meat destined for human food.

As to the medicines used, their strength, composition, and therapeutic value and action are well known, and are prepared with an amount of care in the old time unknown. I speak from my own experience, and I know it.

As to the instruments used in veterinary work, we have the microscope, the clinical thermometer, the hypodermic syringe, the catheter, the tracheotomy tube, the trocar, the stiletto for puncturing the colon in the horse, the easy and comfortable gag for attention to the teeth, the instrument for administering chloroform for dangerous and painful operations, the use of padded slings, and even operating tables. All these are the result of the labours of thinking men, working for the love of their calling, and with a determination to relieve pain and suffering. The ventilation of our stables, byres, and cowsheds, the condition of the fodder, and the purity of the water used are fully considered. To a man earnest in his work and having a love for it, means great self-denial, almost a prohibition from taking part in public or social life, close personal application to his practice, with a constitution capable of standing all and any exposure to climate, great patience, and a determination to persevere that must be prepared to meet all obstacles.

With our patients there is usually a conspiracy of silence. Neither the owner, the attendant, nor the patient can give us any perfect history of the case—as a rule an important aid to diagnosis—and each case we treat we must think out for ourselves. Of course, we often find there are men who have never gone into the matter who know by instinct exactly what is required, just as we find it in other walks of life, and I am inclined to the belief that these men, without their knowing it, act for our good and probably help to make us careful. Moreover, in our cases the result of post-mortem examination may be readily brought either to confirm or refute our diagnosis.

I trust I may express the opinion that the veterinary surgeon of to-day is better equipped than he was twenty-five years ago; that is, if in addition to his college career he has had the great advantage of an apprenticeship.

To the next question, "Do we stand still in our profession?" I am inclined to answer that if we do it is our own fault. New operations performed, new medicines used, new medical appliances, new instruments of the first manufacture; better nursing insisted upon, antiseptic treatment of wounds; more literature on the different subjects, reports of cases to periodicals and papers; conferences and meetings of this character for the interchange of thought, translations from works of foreign authors, for comparison with methods of our own—all must assist in advancing our thoughts and ideas for practical application. And it is the customary and correct thing to do now when a member of the profession has discovered a remedy or devised an operation for the relief of suffering amongst our patients, to give the result of his labours to others, in order that they may benefit and pain be relieved.

Of late years much has been done in the way of comparative pathology, and benefit has been derived by the public in consequence, and even more may be experienced if the medical and veterinary profession could be brought more together. As an instance of what I mean, I remember a few years ago giving my opinion on a hunter, and stated that the animal was affected with tuberculosis. A short time before the wife of the owner had been ill, and continued so for a little over a year, at the end of which time she died from tuberculosis, my patient having died from the same disease two days previously. The cases ran together, and both certificates gave the same disease as the cause of death. My impression then was, and has been since, that could doctor and veterinary have approached each other, benefit to both patients may have been derived, and instruction imparted to both medical attendants.

The use of anæsthetics, cocaine, the tests for tuberculosis and glanders, the introduction of mallein and antitoxin, go to indicate that we are not standing still, and that real efforts are being made by earnest men for the advancement of the art of veterinary medicine and surgery.

To the question "Are we going back as a profession?" my answer is not so easy, and it is one of some anxiety and doubt. By going back I do not mean that we are more indolent, more inclined to let matters slide, more neglectful of our work, or take less interest in it. That I do not for one moment admit or believe. What I wish to bring to your notice for consideration is, are the conditions of veterinary surgery and medicine such as to warrant men who have a love for their work resting and becoming satisfied with its present condition, and how to improve it. To be successful means hard work, close application, great watchfulness, a capacity

for reasoning, and thinking out symptoms presented to us as the result of close observation, in order to secure careful diagnosis—to attend every case according to its own individual merits. There is no hard and fast line in medicine, to be able to relieve, not only the patient, but satisfy the owner. In our cases we have no particular idiosyncrasies of the mind to play upon. Nor can we gain much by the administration of placebos; it is mostly a question of expense, and that must be taken into consideration.

How often has it been that a veterinary surgeon has been disappointed, baffled in his endeavours, in his desire to relieve, and when relief could have been attained, but has been stopped by the question of expense, and until the time comes when all meat for human food shall be examined by qualified veterinary surgeons before and after slaughter, so long must we put up with this disheartening state of affairs.

I venture to say that a few years since torsion of the uterus in the cow was never attempted to be relieved. Tracheotomy in the horse as a means of allowing the animal to work in comfort was never suggested. India-rubber pads to give the proper foothold on some of our modern roadways were not used. The treatment of the foot has been gone into. Mutilation, as formerly practised, is not carried out, and immense benefit to horse and owner has been the result. The mode of administering medicines, the remedies used, are beyond doubt improved. There was an idea that any medicine was good enough for veterinary use. It is not so now, and veterinary surgeons know what they are using and talking about. I do not think that better drugs or medicinal preparations are used in any private or hospital practice than are used in our profession to-day. I have seen a bradawl used by an "empiric" for puncturing the ear in cases of colic in the horse. I consider the hypodermic injection of morphia by the veterinary surgeon a vast improvement. In laminitis the sole was cut away until it gave on pressure of the thumb, the sole cut right into, and the foot placed in hot water. It usually took months to recover. Now with a more humane treatment it does not take so many weeks, and without the attendant cruelty as in the former method. This, to my mind, points to real advancement, and it has been possible to relieve an immense amount of suffering unthought of in the past.

"Are we of real use to the stockowner?" I am ready to believe that we are, and that we really earn our remuneration. I never yet met with a county squire, master of hounds, trainer, dealer, breeder, or groom who was not at times ready to avail himself of the opinion of the qualified veterinary surgeon, and willing to carry out his instructions, and found it to his benefit to do so.

In the region of cattle practice the management and treatment of outbreaks of anthrax, rinderpest, pleuro-pneumonia, tuberculosis, black-water, cow-pox, foot-and-mouth disease, and other serious ailments affecting farm stock, the veterinary surgeon's opinion is sought for and his advice carried out. The diagnosis of these cases is now certain, and should outbreaks occur, do not cause a fraction of the loss that was originally sustained. The patient inquiry into the pathological condition known as tuberculosis received from the veterinary profession a full recognition of its importance, and to our profession credit is due for the research made and for the amount of information placed at the disposal of the public. Rinderpest and pleuro-pneumonia have been stamped out, and any one who can remember the frightful ravages of these fell diseases, as

well as foot-and-mouth disease, must admit we have done good work for the stockowner to justify our claim to recognition. I remember an outbreak of foot-and-mouth disease,—I think it was in 1866. The sight was sickening, and the stockowner of to-day can scarcely imagine anything so disastrous on a farm or in a herd of dairy cows. Of tuberculosis it may be said that means of ascertaining its existence are ready to hand.

In matters relating to the health of and the diseases affecting the horse, farcy, glanders, anthrax, sarcoptic mange, are instances in which immense benefit has been derived by the attention of the veterinary profession, whilst in the examination of horses as to soundness before purchase, the advantage of acting under the advice of an expert is so fully recognised that anything in the way of horseflesh worth anything at all is usually examined. Some outside the profession know a good deal more than any expert can hope to on such matters, but my experience has been that the knowing ones have paid dearly in the long run for their boldness. It is not altogether a thankful piece of business, and it speaks volumes for the way in which our assistance is valued seeing there is so little real difference of opinion.

To all interested in the domesticated animals and to all lovers of horses we are earnest in our endeavour to gain their confidence, and honest in our work. The confidence, I believe, we gain—these appreciate our labour. I have had in my mind the probable difference in the results obtained in the present war had the Veterinary Department of the Army been in the condition that it should have been. Tens of thousands of pounds, and scores, nay hundreds, of precious human lives might have been saved if it had been as fully recognised and equipped as the Army Medical Department. Any one reading the frightful condition of the horses and their want of proper medical treatment and attention from experts during the South African war must be impressed with the urgent need of the Veterinary Department of the Army being put on a proper footing, and until the position of the veterinary surgeon in the Army is as fully recognised as that of the medical officer, so long will this lamentable state of affairs last, and this valuable and necessary public department suffer. We are in hopes that in time to come it will receive the attention it deserves, and it will be a recognition of the fact that we are of real benefit to the horseowner.

The next questions I will answer together: That there is an immense amount of suffering alleviated by the use of proper remedies, surgical appliances, clinical treatment, conditions of nursing, hospital management, baths, anæsthetics, ventilation, and enlightened stable management admit of no doubt.

The old heroic method of blister, bleed, and physic, have almost vanished, and it is right that it should be so. A more humane style has been the outcome of modern thought, and the caustics and medicaments that were formerly applied to wounds must have caused immense suffering. It was only a short time since I was called to see a cart mare suffering from quittor, that had been treated by the empiric with the old "Black Oils," the chief ingredient of which is, as you know, sulphuric acid, and when I saw it the whole of the foot had sloughed. One can imagine the suffering caused, whereas by a little proper surgical interference it might have been put right, and a valuable animal saved. With morphia, cocaine,

methyl, ether, used hypodermically, and the administration of chloroform, pain is lessened, and many restored to health. Operations which could scarcely be attempted without serious risk of life are now of everyday occurrence.

Our education, our remedies, our mode of application, the quiet and thoughtful consideration as to the best means to be adopted towards the end, the real wish to inquire into anything likely to produce a good result, the earnest attention to make the means at our disposal conduce to the well-being of our patient, do honestly enable us to surmise that we are better able to combat suffering amongst our domesticated animals to-day than we ever were, and could we only get our clients to take more personal interest in their own property and give us an encouraging word occasionally still greater benefit may be derived.

To the last question I may remark that the life and position of a veterinary surgeon is pretty much what he likes to make it. No doubt the changes that have taken place in English country life do not tend to improve matters. I think it will be an evil day when old English country life is superseded; the out-of-door exercise which is the great feature of our life is one great charm, to be so many hours with nature is deeply interesting. The practice of a veterinary surgeon needs close application to his work, deep interest in his cases, great energy, strength of purpose, and a full determination to avoid the great pitfalls of temptation often associated with his daily life. It is only to a man really in love with his work that satisfaction comes. The veterinary surgeon has the well-being of valuable stock committed to his care; he has to stand as umpire between seller and purchaser; he has to take his stand against cruelty to dumb animals; to be ever ready to assist at any hour, night or day. The inspection of meat for human food is in most cases, and should be in all, entrusted to his supervision. The inspection of stables, the examination of cows, and in fact everything relating to the conditions of animal life are to a certain extent his peculiar work, and can be done by no other man so well. His public position is always open to comment and criticism, but by this he does not suffer; and, difficult as it apparently seems to be able to satisfy all exactions, I give it as my opinion that the standing of the veterinary surgeon of to-day as a faithful servant of the public is one that will bear favourable comparison with that of any other professional walk in life.

ON MALARIA, &c.

Being an Address given by Dr. Manson, Aberdeen, in the Anatomical Section at the Annual Congress at Aberdeen of the Royal Institute of Public Health, August 1900.

DR. MANSON, after remarking that he had been urged to make his lecture of a popular character, and that he felt this to be a matter of some difficulty, proceeded to state that, so far as he knew, there had never been an outbreak of malaria in the neighbourhood of Aberdeen. In the south of Scotland evidences had been discerned of outbreaks that had occurred a long time ago, and there had been outbreaks in England of a more recent date. His attention had been called to symptoms apparently indicative of British malaria, but on investigation he had found these to belong to other diseases. As a matter of fact, then, malaria as an indigenous disease had ceased to exist in this country.

While, therefore, this subject had for the people of this country no direct interest, the indirect interest was exceedingly great, and especially to Aberdonians, who were found in such numbers abroad. He ventured to state that the problem of the prevention of malaria was the most important with which the Colonial Office had to deal. It was popularly imagined that soldiers and statesmen had absolute control over the empire, but these were really but as "the flies on the wheel." Forces beyond their control had to be reckoned with, and the prevalence of malaria was the most terrible hindrance to colonial development. They must have a scientific basis upon which to work in dealing with this problem. He therefore proceeded to state some of the features connected with the life-history of the malaria parasite. He pointed out that the symptoms of the existence of these parasites in the body followed a definite course, which he went on to trace in a technical passage, evidently followed with keen interest by the experts present. The various stages of the disease were clearly described, diagrams being freely utilised by way of illustration, and Dr. Manson then threw out important suggestions for the treatment of the patient. Dr. Manson went on, in a closely argued statement, to point out what had led irresistibly to the conclusion that some extraneous agency must come into play in order to disseminate the malaria parasite from one human being to another, and that this agent must be the mosquito. The venom emitted by the mosquito when biting a man was the means by which the malaria parasite was communicated. Happily for mankind only one particular species of the mosquito carried on this baleful mission. The facts and deductions he had submitted to them had now been accepted as conclusive by British scientists like Lord Lister and Professor Ray Lankester, as well as by Continental experts of the highest authority. There were still some people who refused to accept the mosquito theory, but these people were sentimental rather than scientific. All the misty notions to the effect that malaria was due to tropical vegetation or climatic conditions must now be abandoned; they were completely out of date. Being convinced that the mosquito theory was true, the question is: What shall we do with it? They must apply their knowledge toward the prevention of malaria. The habits of these mosquitoes were known, and measures might be taken toward the protection of the inhabitants of tropical lands. It was strange that considerations of comfort had not already dictated modifications in the architecture of tropical lands that would have done something to lessen the danger. Isolation must be resorted to in order to check infection, and this precaution had been too long neglected, with deplorable results. The European who desired to avoid infection must avoid native quarters at night, when the peril was always greatest. He thought it desirable, not only that doctors should thoroughly understand how to deal with malaria, but that the lay public abroad should also be brought to realise the necessity of taking precautions. In conclusion, Dr. Manson pointed out the need of sanitary effort, and invited the attention to this matter of the Government, the municipal authorities, and the administrators of naval and military affairs. From the new-born knowledge acquired regarding the mosquito and malaria he trusted that in the course of time they would derive some guidance for the prevention of other forms of foul disease.

LAMINITIS.[1]

BY HENRY THOMSON, ESQ., M.R.C.V.S., ASPATRIA.

MR. PRESIDENT AND GENTLEMEN—I have little excuse to offer for bringing this subject before you to-day for discussion. This being our midsummer and holiday meeting I applied to several of my outside personal friends for a paper; all, however, seemed to have previous engagements, and in August there are several important meetings to be held pertaining to the profession. Now, although we like to have men outside our own members coming amongst us now and again, and giving us papers, I think we must be a poor lot of fellows if we cannot manage to arrange a meeting and have a good discussion on some practical subject amongst ourselves, for I know that there are more than one of our forty-one members able to give us a good lead off, if they would only put their shoulders to the wheel and "show willing."

But to my subject—"Laminitis as met with in country practice." Anything I have to say will, I think, be well known to you all, yet the subject is of so much importance there will be no harm in discussing some of the points relating to it.

Laminitis or founder is defined as inflammation of the sensitive laminæ, and affects the fore feet more frequently than the hind ones, occasionally one foot only. It may, I think, be considered under four forms—Congestive; Acute; Subacute; Chronic. Laminitis has a great number of causes.

The Congestive Form mostly occurs after an animal has got an overdraught of cold water, or has stood too long in a cold draught after being heated; from travelling amongst snow, from concussion by riding or driving too quickly and too long on hard ground, from having a hot shoe applied to the soft feet when newly shod, or from the retention of the afterbirth in the womb of the mare after foaling.

These cases, when taken in time, are generally soon put to rights without much material damage being done to the feet. In all cases I have the animal put into a good, roomy loose box if possible, remove the shoes, put the feet into cold poultices made with bran and cold water, and kept constantly wet by pouring cold water over them; giving as a draught 15 to 20 ounces raw linseed oil and from 1½ to 2 ounces spirit of nitre, or from 1½ to 2 ounces exicated sulphate of soda with 2 to 4 drachms of nitrate potash, every four or five hours in a sloppy mash of drinking water.

In cases where the retaining of the fœtal membranes is the cause, after removing the after-birth I wash the womb well out with 6 to 8 quarts warm water, to which is added 1 oz. tincture of iron. I only inject once, and do not advocate repeated injections. My experience leads me to think they cause irritation and retard recovery. Hyposulphate of soda is given instead of the sulphate. But when I meet with cases where the after-birth has been left too long, or a small portion torn off and retained and undergone decomposition, which it soon does, then the case is more formidable to deal with. Instead of simple congestion from reflex action caused by the irritation of the mucous membrane of the womb, we have septic material developed, which is absorbed by the vessels of the womb, &c., carried through the system, invariably affecting the feet or the bronchial tubes. In these cases I use the hyposulphate of soda until the bowels are

[1] Read at the Summer Meeting of the Border Counties Veterinary Medical Society, at Penrith, 27th July 1900.

acted upon, and then give three times a day half-drachm doses quinine dissolved in ten drops sulphuric acid and one pint cold water.

The Acute Form.—This may be induced by any one of the following causes:—By the horse getting to the corn bin or a sack of oats and gorging himself, or from over-feeding with badly boiled wheat or barley, too big a feed of Indian corn or meal, too much oatmeal and water or flour and water when the animal is hot and on a long journey, or from eating too many potatoes or turnips. When these cases are very acute and the patient in great pain, pulse full and bounding, breathing hurried, nostrils dilated, and perspiration running off the body, five to eight quarts of blood taken from the neck gives great relief. I always bleed from the neck. I have come to the conclusion that bleeding from the toe is injurious; it admits air to the inflamed structures. In the early part of my professional life it was common to bleed from the toe, and I do honestly believe it was one of the great means of causing the sole to drop, while bleeding at the coronet, which was much practised by many, retarded recovery, as too many of the blood-vessels that form the beautiful plexuses at the sides and top of the foot were cut through and damaged. In some of the cases, when the fever was high, phlebitis was a common occurrence. After bleeding remove the shoes and poultice the feet, keeping them wet with cold water: making the horse move round the box every two hours. At the onset I give from 4 to 6 drachms of Barbadoes aloes dissolved in 1 pint hot water, mixed with 1 pint raw linseed oil; warm water enema every three or four hours until the bowels are acted upon, and nitric water to drink. Should the bowels not respond at the proper time from 1½ to 2 ounces sulphate magnesia or sulphate of soda are given every four or five hours. I find the salts to act on the bowels gently, while the temperature is reduced at the same time. This is a favourite treatment of mine. When the cause arises from potatoes or turnips, I do not use the aloes and oil, but give hyposulphate soda or carbonate soda according to the state of the bowels.

The Subacute Form may be the outcome of the acute, but is usually the result of an over-dose of physic setting up super-purgation, particularly when purgatives have been administered at the commencement of bronchitis or influenza; or it may be due to metastatic inflammation or shifting of inflammatory action from some of the respiratory or abdominal organs to the feet. In these cases, after the shoes are removed, I put the feet into *warm* poultices, not hot. Should the purging be excessive and without pain in the bowels, I give 1-ounce doses each of carbonate soda and aromatic spirits of ammonia in 1 pint of cold water every five or six hours, and offer the patient well-boiled oatmeal gruel, strained through cheese cloth, say 1 quart of warm gruel and 1 quart of cold water mixed. As there is generally great thirst the animal drinks it greedily, and I find it arrests the purging gradually, and answers better than anything I have ever tried. I do not believe in flour, which is recommended by many; the starch it contains I think changes to sugar and then becomes acid, causing more irritation and excitement in the bowels; nor do I advocate stopping the diarrhœa too suddenly. It is years since I dropped using astringents, such as laudanum, chalk, catechu, &c. If much pain is shown I give hypodermic injections of morphia, or morphia and atropine.

Chronic Laminitis.—Any of the previous forms may terminate in the chronic form. It is, however, most commonly seen in fat horses and ponies that have little or nothing to do, and have been put into too good

a grazing pasture, or stood too long in one position, particularly on one leg, when some injury has been done to the opposite limb.

In the case of fat animals, after having the shoes taken off, I let the patient stand or walk up and down in a stream or pond of water for two or three hours three or four times a day, changing the food to a poorer quality, and giving two ounces sulphate magnesia and two to three drachms nitrate of potash three or four times a day in a mash or drinking water. To prevent founder from the standing too long on one foot in cases of lameness, remove the shoe from the sound one and let the animal stand on wet sawdust, moss litter, or green turf, but make the animal stir the leg eight or ten times in the twenty-four hours; this helps the circulation in the foot and prevents congestion; but if practicable get the animal turned out into a grazing pasture.

It is needless to name the symptoms of laminitis to you either when in the fore or hind feet, or when all the four feet are affected, nor need I mention the deformed state of the feet seen as the result of laminitis. As I have already detailed the various modes of treatment for the different causes I need not refer further to them, except to say I have no belief in tincture of aconite for reducing the fever in laminitis or any other complaint. I can do much better with the saline salts and alkalies. It is years ago since I dropped using aconite. With regard to poultices, I hold that cold poultices answer best, they extract the heat from the foot, and a sort of osmosis is established, while tone is given to the parts, for if within twenty minutes after a cold poultice is put on you put your hand into the poultice close to the foot you find it pretty warm. I have great faith in the cold water treatment for many things, and have used it for forty years with good effect. My attention was first called to its beneficial action in the bottom of the coal mines where we could not procure hot water. When I first entered the profession in 1852 hot poultices were the rule, with the result that the cases I think made a tardy recovery, and the soles frequently dropped more than we see now-a-days. The custom then was to remove the shoes, dress the soles, and rasp the walls to a thinness, and put a seton in the breast. That is now changed. I remove the shoes and put on the poultice without any dressing of the feet. I am a great believer in moving the animals round the box several times a day. You are all perfectly aware that in bad cases of laminitis the horse stands obstinately, and will not lie down. I not only make him move to encourage the circulation, but also put him on to his side by lifting up the near fore foot and pulling his head to the off side with a halter put through the girth. Once the animal has been put down and gets a good rest, he goes down readily enough afterwards. One case I may mention was a valuable thoroughbred stallion in which the malady was the result of over-feeding with boiled wheat. After putting on the poultices I kept a man pouring cold water on them for three days and three nights—only the man was changed every six hours; this treatment answered splendidly. Another, a Clydesdale stallion, was walked in a stream two or three hours three times a day with good results. Still another case, the horse was tied to a branch of a tree near a pond in which he stood every alternate four hours up to the knees in water, and made a good recovery.

After the active symptoms have abated I put on broad bar rocker shoes. I think too much cannot be said about this shoe; and when the case is very chronic a blister round the coronet at times answers well.

Now, gentlemen, I think I have said enough to promote a discussion, and thank your all very much for your company.

A FEW NOTES ON BROOD MARES AND YOUNG STOCK.[1]

BY E. R. GIBSON, ESQ., M.R.C.V.S., SEAHAM HARBOUR.

MR. PRESIDENT AND GENTLEMEN—In dealing with the subject of brood mares and young stock, it is not my intention to enter into an exhaustive treatise on horse-breeding, as I don't consider myself an authority on that subject; but as we are now in the midst, or perhaps nearing the end of the breeding season, at least as far as the equine species are concerned, I think it will not be out of place to bring before your notice one or two conditions incidental to parturition, and another occurring in the foal after birth. In these few remarks I refer particularly, but not entirely, to the heavier breed of horses—Clydesdales—as it is with them I have had most to do.

In the breeding of horses the first and most important question which arises is the selection of your animals. It ought to be the first consideration of the breeder to endeavour to produce only those animals which approach to the standard laid down as perfection; in other words, to breed only from sound stock. Volumes have been written on the question as to what constitutes soundness, and as to what diseases and conditions are to be considered hereditary and likely to be transmitted from parents to offspring. It is not my intention here to enter into this subject, as it would take too long to discuss the question.

Granted you have a pregnant mare, her treatment for some considerable time before parturition is a question of importance. Judicious feeding and exercise have a great deal to do with the production of a healthy foal. In the case of farmers who only breed one or two foals in a season, the mares are usually kept at work during the winter until near the time of foaling. When breeding on a larger scale, with the number of mares in excess of those required for the working of the farm, a certain number must necessarily be idle. In these cases it is the best plan to let your mares run out all the winter. There seems to be a prevalent idea amongst all farmers, at least those of my acquaintance, that it is absolutely necessary for horses to be housed at night during the winter season. This is quite a mistake; animals which are left at large are provided by nature with an ample covering to protect them from the weather. Animals housed at night certainly feel the effects of the cold during the day. And another thing, if you want to have your animals in show condition in the spring, there is nothing like a winter's run. After the winter coat is cast, the legs appear clean and hard, in contrast to the flabby appearance of those otherwise treated. Of course in rough weather it is necessary to feed at least once a day on hay and corn, and if possible a few Swedes.

The next question to consider is the time of year best suited for foaling. In the North of England it is a mistake to have very early foals. In my opinion the months of April or May are quite soon enough. At that time the weather is usually mild enough to allow of mare and foal being turned to grass soon after the birth of the foal, and thus derive the benefit of fresh grass and exercise. Early foals have a tendency to get what is commonly called "up on their joints," and are often outstripped by their younger brethren as the season advances.

The few remarks I have already made refer more particularly to the breeder than the veterinary surgeon, but there is a condition arising in the

[1] Read at the Meeting of the South Durham and North Yorkshire Veterinary Medical Association, June 8th, 1900.

mare after parturition with which we have all to deal at times, and which I would like to say a word or two about. I refer to retention of the placenta. During the last two seasons I have had a good many cases of this kind, and I think the treatment of a mare with a retained placenta is of great importance, and if neglected gives rise to very serious conditions. I was generally taught that the placenta is expelled by the contraction of the uterine walls. This may be the case to some extent, but retention of the placenta is due also to the same cause, the contraction taking place at the neck of the uterus,—what is known as hour-glass contraction in human practice. In the majority of cases immediately after birth the amnionic portion of the placenta becomes dependent from the orifice of the vulva, and is connected inwardly with the chorionic portion by the ruptured umbilical cord. The weight of the outer portion brings about separation between the chorion and the uterine wall, and this brings about expulsion.

As to the length of time a retained placenta should be allowed to remain, opinions differ; as far as my experience goes the sooner it is removed the better for the patient. Of course it may safely be left in most cases for an hour or two, or even four or five hours, but as a rule there are symptoms of inconvenience arising from it before that time.

The removal of the placenta is not a very difficult operation. I was taught that the best plan is to lay hold of the outer portion and to twist continuously until the inner portion becomes detached. Well, I have tried that plan without much success. In most cases the placenta of the mare is not firmly adherent to the uterine wall, but is retained by the contraction of the neck of the uterus and os uteri. In such cases a little gentle traction is sometimes sufficient to remove it. In cases where there is firm adhesion to the uterine wall the best plan is to pass the hand along the umbilical cord as far into the uterus as possible, and by gentle manipulation with the fingers you will soon get a handful of membrane, and this should be drawn as gently as possible towards the outer orifice. If any amount of force is required a start should be made in another place, and so on in several places until the whole of the membranes are detached.

After the removal of the placenta comes the most important part of the operation—that is, the thorough disinfection of the uterus. For this purpose the best instrument to use is Arnold's modification of Reid's pump. I inject into the uterus from half a gallon to a gallon of 1 in 2500 solution of bichloride of mercury. After injecting the fluid the barrel of the pump should be detached and all fluid syphoned off by means of the tube; during the removal of the fluid it is necessary to keep the hand in the uterus to prevent blocking of the nozzle by suction on the mucous membrane. In cases where there has been a dead foal, or difficulty in parturition from any cause, the operation of washing out ought to be repeated at least once a day for four or five days. I consider this the only preventive of septic metritis and laminitis in the mare, and too much attention cannot be paid to the matter, especially the careful removal of all fluid and débris from the uterus, as if left it only acts after a time as an irritant, causes uterine pains, and generally aggravates the case.

I am confident that a number of mares are lost after difficult parturition, where surgical interference had been necessary, from no other cause than a want of care in preventing the absorption of septic organisms through the uterine circulation. I have had several cases where mares which have foaled all right, at about the second day presented symptoms of laminitis,

although the uterus was to all appearance healthy. After a wash-out with the solution named the symptoms have abated and a rapid recovery resulted.

The next condition I propose to say a word or two about is one arising in the foal shortly after birth—the disease known as the joint-evil or joint-ill. Now this is a very troublesome disease, and causes a great amount of loss at times. Cases of joint-evil are not very satisfactory ones either for the practitioner or his client; as a rule they are not amenable to treatment, hang on for weeks, with the result probably that the animal either dies or may be a confirmed cripple.

As far as my experience goes there are two affections of the joints occurring in young animals, and arising from different causes. The first is that arising in young foals from 24 to 48 hours old. The animal is born to all appearances healthy, sucks all right, and generally behaves as a rational foal should do, until perhaps one day old, when he is noticed lame in one or more limbs with painful swellings about the joints, usually the hocks or shoulder, although I have had a case occurring in the pastern joint only, and thought the mare had trod on it, and treated it accordingly until it died, when post-mortem revealed otherwise. In these cases I have noticed that during life there is very little urine excreted. On post-mortem there is more or less inflammation of the tissues about the affected joints, and the capsule filled with an abundance of watery fluid resembling synovia, but without the oily appearance of that fluid. The kidneys are congested, with sometimes dropsy of the capsule; the bladder as a rule empty, and usually an ante-mortem clot in the left ventricle of the heart—the actual cause of death.

The cause of the disease is the failure of the kidneys to perform their function in carrying off the urinary elements from the blood. The duration of the disease is very short—from 12 to 24 hours, and treatment is not of much avail.

The other form of joint-ill is that occurring in older foals, from one to six weeks old, and is associated with the formation of purulent abscesses in or about the joints. The cause of this disease is the access of pyogenic organisms through the umbilicus. The umbilical cord is made up of the umbilical arteries and vein, and the urachus, which during fœtal development connects the fœtal bladder with the allantoic portion of the fœtal membranes.

In some cases it is necessary to ligature the ruptured ends of the umbilical vessels in the foal. But I think the practice is resorted to more than is necessary, a little pressure with the finger and thumb for a few seconds being in most cases all that is required to prevent hæmorrhage. The practice of ligaturing has this disadvantage, that after the ligature is applied as a rule no further precautions are taken; in time the lower portion commences to slough off, pus is formed at the point of separation, and this is the beginning of some cases of joint-evil.

In normal cases the urachus contracts and closes at birth, and the urine passes through the urethra; in others the orifice does not close, and when urinating part of the urine continues to be evacuated at the umbilicus. This is a very troublesome condition, and as long as the urachus remains perforate organisms easily gain access to the system and give rise to this particular condition of the joints, although it is not necessary to have dribbling of urine in order to have a case of joint-ill, as organisms fre-

quently gain access through the umbilical vein and thence into the hepatic circulation.

Now what preventive measures are best for this purpose. What we want to do is to render aseptic and bring about contraction of the remnant of the umbilical cord as soon as possible, and for this purpose there is nothing better than sol. of ferri perchlor., one in two of water, applied once a day for two or three days after birth. Dribbling of urine does not occur until the dried-up portion of the umbilical cord has dropped off. Many different methods of treatment are adopted to stop the flow of urine, the most popular one being the application of a ligature close to the abdominal wall. The method which has yielded best results to me has been the injection into the open vessel of a strong antiseptic and astringent solution. I find that weak solutions do no good, and therefore use a half per cent. sol. of hyd. bichlor. with excellent results, as one or at most two injections are usually sufficient. The syringe used holds about a drachm, with a nozzle about 1½ inches long.

The preventive treatment of this disease is most important, but when called to a case some curative treatment must be tried. If the weather is at all mild I think mare and foal are better on the grass. If there is difficulty in rising, the foal should be assisted to its feet in order to suck the dam four or five times a day. I had a case last season under treatment for quite three months, which ultimately recovered. The administration of sodæ salicylas or salicylic acid is sometimes beneficial. The agent from which I see the most benefit is cod liver oil administered twice daily. But unless you have a very valuable animal to deal with, the trouble and expense of treatment come to considerably more than the value of the patient.

Discussion.

Mr. Awde had met with cases of retention of placenta this season in mares, but did not allow them to remain there very long on account of the danger of septic laminitis supervening. He used chinosol as an antiseptic for irrigating the womb, preferring it to the hyd. perchlor. as there was less straining after its use. Had seen several cases of navel-ill in foals too, but the disease was well established in the majority of cases before being seen, and treatment of little or no good.

Mr. G. E. Gibson used pure carbolic acid for navel-ill, and with good results. In pervious urachus lime water was used. He leaves fœtal membranes in mare twelve to fourteen hours before removal, and preferred Jeyes' fluid for washing out the womb afterwards.

Mr. Snaith should not think twenty-four hours too long a time to allow the fœtal membranes to remain before removal. He used potass permanganate solution for irrigation. In navel-ill cases had used argent. nit. and solution of hyd. perchlor.

Mr. Dudgeon in a case of pervious urachus blistered with cantharides, which caused irritation, swelling, and closed the opening. He considered twenty-four hours too long to leave the membranes; twelve hours was long enough. He considered Jeyes' fluid the best antiseptic afterwards. Navel-ill was preventible, but asepticism is hardly possible in ordinary farmyards. Had seen a case of navel-ill under treatment for four months, and it recovered.

Mr. Pratt recommended the removal of retained fœtal membranes

from a mare within twelve hours, or laminitis was likely to result. Had a mare foaled at one a.m. and at eight a.m. everted the uterus in trying to get rid of the placenta; if a small piece of placenta was retained it would set up laminitis.

Mr. DEANS would not leave placenta there twenty-four hours. He used a hot iron to the navel in foals.

Mr. HILL used chinosol for purposes of irrigation after removal of placenta, and considered twelve hours sufficiently long to allow them to remain. Used ferri perchlor. to the navel of foals.

Mr. TAYLOR considered that pervious urachus was not very difficult to treat alone, but if associated with navel-ill it was often a very difficult matter indeed.

Mr. GIBSON having replied to the discussion, a hearty vote of thanks was accorded to him, on the proposition of Mr. Roberts, seconded by Mr. G. E. Gibson, and carried unanimously.

THE NATIONAL VETERINARY ASSOCIATION.

THIS Association held its Annual Meeting in Dublin on Tuesday and Wednesday, the 21st and 22d of August, under the presidency of Mr M. Hedley, F.R.C.V.S., Chief Inspector (Veterinary Department), Privy Council, Dublin Castle.

The meetings were held in the Lecture-Hall of the Royal Dublin Society, Kildare Street. The members were welcomed by Lord Ardilaun, who said :—Ladies and Gentlemen—I wish to offer you a hearty welcome to Dublin on behalf of the Royal Dublin Society. We have learned in this country, in which our success in farming so largely depends on cattle and the breeding of horses, the value of your services and your discoveries. I sometimes think that members of your profession must look with rather anxious eyes on the march of the motor and the endless multiplication of cycles; but there is one comfort and consolation to you, that hunters cannot yet be dispensed with, and though I hear there are some rumours of a hunting machine, which will combine the principles of the hunter and the balloon, still, in the meantime, you can hope for the best, and trust that the use of hunters will not be altogether abandoned. I have only to wish you a pleasant visit to Ireland, and all success in your labours. I regret that it was not in your power to find time to pay a visit to me at St. Anne's; but I have, through the kindness of my Council here, who have placed a room at my disposal, arranged for luncheon to-day for the members of your Society within this building, which I hope they will find a convenience. I wish you again a very pleasant meeting, and all success in your labours.

Professor Dewar was elected President for the ensuing year, and Edinburgh was fixed upon as the place of meeting for 1901. Mr. W. H. Bloye, F.R.C.V.S., was elected a Life Vice-President of the Association, and Professor Ewart, of Edinburgh University, was elected an honorary member. The President alluded in feeling terms to the great loss which the Association and the profession had sustained in the sad death of Sir Henry Simpson. A vote of sympathy and condolence to Lady Simpson and the other members of the family was passed, and Mr. Wragg was deputed to represent the Association at the funeral.

The President then delivered an address. In the course of it he said

that the veterinary surgeon had more to deal with than the horse. His experience was required in connection with cattle, sheep, swine, goats, dogs, and at times the wilder animals which were often in menageries. In 1791 veterinary science first rose from an empirical stage to that of a recognised profession in the United Kingdom, for in that year the first Veterinary College was established in London. It was worthy of remark that few countries, if any, could show as clean a bill of health, as far as animals were concerned, as Ireland. Ireland had exported an enormous amount of stock, not only to Great Britain, but to various parts of the world. Returns indicated that between 1878 and 1899 more than 43,250,000 animals had been exported, that number including cattle, sheep, swine, goats, horses, mules, and asses. A return for 1899 showed that there were still in the country four and a half millions of cattle, nearly four and a half millions of sheep, over one and a quarter millions of swine, and over 800,000 horses, asses, and mules. The very large exportation of animals from Ireland implied a constant drain, and he hoped that in the near future there would be established in various parts of Ireland breeding establishments under veterinary superintendence. The veterinary profession wanted the Army veterinary surgeon to be more fully recognised, and to have his department more fully manned. They wanted the advice given by such gentlemen to be accepted; they wanted veterinarians to be properly recognised by the State, and be looked on as the mainspring of, rather than an auxiliary to, the department which dealt with veterinary matters. They wanted the Local Government Board to have veterinary Commissioners who would supervise veterinary officers in various parts of the kingdom who were employed in dealing with the Public Health Acts. They wanted to see dethroned the plumber, the gasfitter, and the retired policeman, who were usurpers of the veterinarian's position as far as it related to the inspection of meat and of places for the housing of animals. They wanted to see the veterinarian established as an officer in every municipal body or county council; and lastly, they wanted to see the National Veterinary Association a lever of power in the register of the Royal College of Veterinary Surgeons.

After the President's address two papers were read to the meeting, one on "Parasitic Diseases communicated from Animals to Man," by Mr. F. C. Mason, and Mr. R. Walles Hoare, and the other on "Veterinary Hospital Nursing," by Mr. P. J. Howard, and Mr. W. A. Byrne.

Sir Christopher Nixon, President of the Royal College of Veterinary Surgeons in Ireland, took part in the discussion. He referred to the closeness of the relation between veterinary and human medicine. A great deal had been lost in the past from the want of a more intimate association between the two, and he hoped that in the future study of preventible diseases the students of human medicine would take advantage of the knowledge that was spread in the different veterinary schools. He hoped that they were not very far distant from the time when they would have a professor of comparative pathology associated with veterinary medicine, whose lectures the students of human medicine would attend. He had an idea of the establishment in Dublin of a Pathological Institute, and there was a great opportunity now for having that idea carried out, when for the time in the history of the country a college was established for the teaching of veterinary medicine.

The proceedings for the first day concluded with a lantern microscopic

demonstration of the "Development of the Horse's Foot," by Principal A. Mettam.

The proceedings of the second day were commenced by a discussion in a paper by Professor Ewart on "*Cross-Breeding* (*Telegony*) *in Animals*," and a discussion followed, in which Mr. Pallin, Mr. M'Kenny, Mr. Sidney Villar, Professor Mettam, Mr. M'Gavin, Mr. Winter, and others took part.

Professor Ewart, in replying to the various criticisms, said in his opinion prepotency was the question of questions at the present time amongst breeders. The further question of what it fully meant was one which still required a good deal of investigation, and one to which they might usefully and readily give their attention. So far as in-breeding was concerned, it might not tell for many generations in some breeds of animals, whilst in others the practice might tell at once. In considering the question of in-breeding, a great many points had to be considered, and one of the first was the sort of animals to be dealt with. One part of the world believed that in-breeding was fraught with evil, especially when human beings were concerned, and the other half thought that practically no harm came of it; at least they said that in-breeding produced no harmful results if the stock was healthy. He believed both sides were right, and also that further investigation would show that they had not at present a sufficient number of facts before them to enable them to come to any complete conclusion on the subject. In other words, they had not been careful to observe whether closely-related animals were like or unlike, and if they carefully noted in future whether or not consanguineous animals which were mated differed from each other, and in what respect, then they would be better able in the future to come to some decision. Coming to the question of telegony, it was interesting to find an assembly in which this doctrine had so little support. A few years ago almost everybody seemed to believe in it, and he came to that meeting prepared to find many of the speakers favouring the old hypothesis. He was surprised that this was not the case, and he believed that it was by the influence of the veterinary profession more than any other at work at the present time that this once almost universal doctrine was being modified. Mr. Pallin had especially interested the meeting by showing a cat which had been born with only three legs, and the question arose whether it was born so because its mother had lost its leg in a trap, or whether it was a mere coincidence. It was for each man to settle that question for himself. He had certainly heard of no record in regard to the human species where any offspring was born without a limb because the father or mother was so afflicted, and from the results of his experiments he could say that they would not be justified in saying that abnormal changes in nature such as had been shown them were the results of previous injuries to parents. He would like to refer to the point Professor Dewar had raised as to whether animals were bettered by change of surroundings so much that they recovered from any innate weakness they possessed. In Scotland, especially by sheep-breeders, it was considered that if they sent away some of their stock to another part of the country, and after a time brought them back, it tended to rejuvenate the breeding qualities of the flock. He had no hesitation in saying that surroundings had an influence not only on sheep but also on horses.

The President then informed Professor Ewart that on the previous day he had been elected an honorary member of the Association.

Professor Ewart, in returning thanks, said he could promise that if they

came to Edinburgh next year, as proposed, he would have much pleasure in showing them his work at Penicuik. Discussions afterwards took place on papers on veterinary surgical and mechanical apparatus, and other subjects.

Votes of thanks concluded the Conference. In the evening the annual dinner took place. The remainder of the week was devoted to excursions.

PRESIDENTIAL ADDRESS.[1]

BY J. SMITH, ESQ., M.R.C.V.S.

Mr. SMITH said his first duty was to thank them for the honour they had conferred upon him, and it was one which he appreciated to the fullest extent, especially as the present was the second time during the last seven years. He was perfectly aware that there were members of the Association who were better fitted to take the responsible position than himself, but he would assure them that he would do his best for the welfare of their Association.

Since he last had the honour of addressing them as President many changes had taken place, some of which had seriously affected them. First of all they were seriously affected when their ship lost its pilot in the person of the late Captain Russell, who was a gentleman well known by the majority of the profession, and as one of the mainstays of their Association they had suffered an irreparable loss, and he could safely say that the majority of those present had lost a true friend. To add to the death roll there was the name of Mr. Hardy, one of the first to join the Association, and at all times one of the best. He was an Englishman from head to foot, and he (the speaker) could bear testimony to his good qualities as he had acted as his assistant for nearly a year. Since even the last meeting of the Association Mr. R. Mackinder had been called away, and although not a very active member he took great interest in their welfare, and was one of their earliest members.

Now with regard to the Association itself. They were aware that the attendance at their meetings had not been entirely satisfactory. They had been in existence since 1883, and the best of men have done the best of work in helping them along, but these meagre attendances or want of interest in our meetings is a very serious item, and if it continue is likely to prove fatal to our very existence. No one knew better than he did the difficulty of getting away at a given time, but the meetings do not come often, and he was quite sure that with an extra effort more members might be present. It was not as if the Association were in difficulties, for they have a splendid balance at the bank, and besides, as a profession they had grievances to air, and why not endeavour to work out the conditions of their motto, *Vis unita fortior*. What was or could be more likely to foster this idea than becoming a member of such a society as theirs, and supporting it by attending the meetings. He had not the least doubt that with more co-operation they, as veterinary surgeons, would be better off.

He was very pleased to read the other day that the medical men in Lincoln had to a man refused to accept a public office at the yearly stipend of £45, and that the office had been going begging at the price

[1] Delivered at the Meeting of the Lincolnshire Veterinary Medical Association, August 1900.

originally tendered. He only wished that there was more of this *esprit de corps* in the veterinary profession, so that they might be enabled to keep up their charges—charge double where quack medicines have been used—and so enable them in every way to benefit themselves and the profession.

Another matter he wished to make reference to was the lack of volunteers to bring forward subjects for discussion. He was of opinion that every member should consider it to be his duty—and it is a duty—to take his share in upholding their Society. If the members only knew how much the minds of the officers would be relieved were this to happen, or if they could appreciate the extent to which this would benefit the meetings by encouraging discussion, and in that way assuring a gain of knowledge by each individual member, more essayists would quickly appear. It had been suggested that if the time of their meetings were altered it would prove more convenient. If this could be done and please the majority of the members he would say let it be done by all means. He knew that he had not been elected their president to lecture them, but he must say that he felt very strongly on these matters, and he was sure that they were subjects which must appeal forcibly to them all.

Leaving the Association, he was not aware that there were any political questions at present agitating the professional mind. This was a highly satisfactory state of affairs, although it made it more difficult for him to find grounds to talk upon. He believed it was the usual thing to have a growl at the Board of Agriculture, but on this occasion it would only be a small one. He was willing to admit that they had been paid for the work they had done, but when with the help of the veterinary surgeon the Board had practically stamped out swine fever (he was alluding to his own county) it seemed strange that reports are not to be sent up by the inspector unless he suspects swine fever. This state of affairs may not exist in other counties, but it was so in his district, and no doubt they would all agree that they would not give an opinion without a post-mortem.

Another standing dish, of course, was the question of meat inspection; and if he was to tell them that nobody could possibly know as much about the subject as a qualified veterinary surgeon, or of the necessity of his being appointed inspector, he would only be repeating a truth well known to them all. They were well aware that in some of the large towns public abattoirs were in existence, and that even in some cases the local authorities have been brought to think it necessary that a veterinary surgeon should be employed as meat inspector. He had not the least wish to minimise the good work done by medical officers of health, but he would suggest that co-operation with a veterinary surgeon would be of the greatest benefit to the public at large, and, to say the least of it, the refusal of the Local Government Board to receive their deputation on the subject was not polite. As usual no encouragement was offered to the veterinary profession.

As to the inspection of cowsheds and dairies, this subject had engaged their attention some time back, when he had expressed his views, and the resolutions moved at their last meeting by their worthy ex-president, and unanimously adopted, should act as the thin edge of a wedge. He hoped that the Veterinary Associations would take up the subject and work at it until they had driven the wedge well home.

It would take too much time to review the progress they had made as a profession since he last occupied the President's chair, but he would take

that opportunity of saying that he considered the injection of pot. iod. into the udder in cases of milk fever was a decided boon to the veterinary surgeon. He was aware that this opinion was not general, still he shared it with many practical men. With all due respect to Professor Williams, he had used this treatment (combined with the chloral treatment) in the last dozen cases of milk fever he had attended, and each case had made a good recovery. He had not seen mammitis or gangrene as a result, although it had supervened in some cases. Some of the cases were bad ones and looked like dying, and others were favourable cases.

Again he was of opinion that the use of cocaine in firing was a decided benefit. He found that the injection of a 20 per cent. solution had a large share in relieving the necessary pain of the operation. It may be necessary to use a twitch in order to be able to insert the needle, but once you get the effect of the cocaine the twitch may be taken off and the horse will stand to be fired; in many cases not even picking up his leg.

ON PSEUDO-TUBERCULOSIS.

Being Address delivered at the Annual Congress of the Royal Institute of Public Health, held at Aberdeen 2d to 7th August 1900,

BY JAMES M'PHAIL, ESQ., M.R.C.V.S., INSPECTOR OF MARKETS, EDINBURGH.

MR. CHAIRMAN AND GENTLEMEN—The object of my paper to-day is to consider shortly with you the various conditions which may, and frequently are, mistaken for those due to tuberculosis. At the present day a knowledge of these lesions is rather important, as only too often any caseous degeneration accompanied with a tendency to calcareous deposition is labelled tubercle, and without any further investigation the decision is acted upon.

Unfortunately—or rather fortunately, shall I say—those interested in these condemnations are awakening to the fact that dogmatic decisions may not be altogether correct, and they are now asking for, and have a right to demand, verification of everything stated; an instance in point being the carcase seized in London a short time ago, and condemned for tubercle, which was subsequently returned to the owners. The mistake which was made was not to be wondered at, because there are stages in some diseases which may be mistaken for tubercle, not only naked eye but even histologically, for it is difficult to say what the typical structure of a tubercular nodule is, for there are periods in many new formations at which there is infiltration of leucocytes, and even giant cells.

There is doubt but that the tubercle bacillus along with other pathogenic germs work along a similar line to a certain extent; they set up a form of inflammation, the character of which depends upon the virulence of the bacillus, and on the resistant powers of the invaded subject.

The conditions to which I wish to draw your attention may be summarised under the following heads:—

(1.) Coccidia disease.
(2.) American sheep disease.
(3.) Aspergillar pneumomycosis.
(4.) Bacterial necrosis of the liver.
(5.) Actinomycosis.
(6.) Pseudo-tubercle in sheep's lungs.

The first condition, gentlemen, and also one of very common occurrence, is the lesion found in the rabbit's liver caused by the sporozoa or coccidia. The lesions seen in this disease are small nodules in the liver, greyish white or yellowish in colour from the size of a bean to that of a hazel nut. These nodules are filled with caseous or sometimes purulent contents, in which the *Coccidium oviformæ* is found in large numbers. According to "Raillet" these organisms pass into the bowel, and from thence probably as amœboid masses into the liver ducts, where they undergo a further development. They first form a capsule around themselves, they then divide into four masses or spores, from each of which is developed a C-shaped hyaline rod, the cavity of which is occupied by closely packed granules, and they remain as such until they reach another host.

In the stomach of the new host they become free amœboid cells, and either penetrate into the intestinal epithelium (*Coccidium perforans*) or reproduce their hepatic form. Those which penetrate the intestinal epithelium cause its destruction, and sometimes ulceration and necrosis of the part. They sometimes form a false membrane similar to diphtheria in fowls. I have also seen this condition in the throat of a sheep.

In relation to public health, rabbits suffering from this disease should be condemned, as this condition is also found in man, in whom it may be reproduced. This condition should also be carefully noted, owing to the very common use of rabbits for inoculating purposes.

The second condition simulating tubercle is—

American Sheep Disease.

The principal lesions seen in this disease are found in the bowels and mesentery. Studded all over those parts are small pearly-looking nodules from the size of a pin-head to that of a hazel nut. Hundreds of these nodules may be present, and when cut into are found to contain a caseous, but oftener greenish matter. This, however, when examined microscopically is found to contain the larval form of a worm. They measure about three to four millemetres in length, and are the immature form of the Œsophagostome of Columbia which has its habitat in the colon of adult sheep. The worm itself is twelve to fifteen millimetres long.

This disease is of frequent occurrence in adult sheep in the south of the United States, and is more particularly observed in the back end of the season. Since the closing of our ports against foreign cattle, this condition is only seen at those ports of landing where they slaughter the animals on arrival. In connection with this disease, the sheep do not seem to suffer any inconvenience, and the carcases are well nourished.

The third condition to which I would draw your attention is—

The occurrence of Nodules in a Sheep's Lungs filled with caseous contents.

These nodules vary in size from a linseed to that of a pea. They may exist in large numbers, or may be even disseminated throughout the lung tissue. This condition, seen with secondary infection of the liver and lymphatic glands, is rather suspicious. As far as I can make out these changes in the lungs are caused by the *Aspergillus fumigatus*, whose presence may be demonstrated. It occurs in greyish tufts, the conidia are round, smooth, and mostly pale and colourless. The mode of infection is

probably from vegetable dust. This disease appears to develop in weak animals, and the morbid changes are acute, as both the leucocytes and connective tissue corpuscles undergo a very rapid breaking down. In this way the centre of the nodule is rather purulent and caseous.

The fourth condition is—

Bacterial Necrosis of the Liver.

This disease, seen in several of the lower animals, may also be mistaken for tubercle, especially if it should occur, as I have seen it do, along with an invasion of the chest cavity by the lymphatic stream of the organisms which cause this disease. In animals suffering from this disease, on the abdomen being opened, attention is generally attracted to the liver. The organ is greatly enlarged, and scattered throughout the liver substance are roundish nodules which project above the level of the capsule. Section through the liver will show that these nodules are scattered throughout the hepatic tissue. They vary in size from the area of a sixpence to that of half-a-crown. The difference between these conditions and that of tubercle is, that though the nodules are cheesy-looking, yet they are tough on section, and they do not soften as in tubercle, neither is there any tendency to calcareous deposition.

The active cause of this condition is a bacillus which may be obtained at the margin of the nodules. In the case I mentioned, which was recorded in the VETERINARY JOURNAL, the lesions were also found on the pleuræ, both parietal and visceral, but not in the lung tissue, and there is no doubt but that the bacilli spread by the lymphatics through the diaphragm.

The last condition I intend touching upon before going on to pseudo-tubercle in the sheep's lung is one which some may think I should have left out,—I mean

Actinomycosis.

But, gentlemen, this condition closely resembles tubercle when all the organs of the body are invaded, and it needs the microscope to satisfactorily determine which it is. I may say I have had opportunities for studying the lesions produced by the ray fungus, and some of them are remarkably alike to tubercle. One case I may mention; it was under observation for six weeks (it was in one of the city byres, and was ordered out under the Public Health Act). Within that period the nodules had increased from being just discernible to distinct lumps fused together and gravelly to the touch. The milk of this cow had been examined again and again with negative results. When this animal was slaughtered, the masses in the udder were found to be composed of fibrous granulation tissue, studded with pustular nodules, with yellowish calcareous particles, and very gritty on section. The lungs in this case were also affected. They contained minute nodules, not so calcareous and more purulent looking. The pleuræ were the seat of clusters of growths similar to the grape form of tuberculosis. The probability is, that if this cow had come into an ordinary slaughter-house, it would have been certified and condemned as tubercular.

Now, coming to pseudo-tubercle seen in sheep's lung—

This disease, gentlemen, is often confounded with and described as occurring with "hoose" or parasitic bronchitis, and it is said to be difficult to distinguish the relative symptoms of each disease. This, however, is not correct, for they are two distinct diseases, and caused by at least two distinct worms, viz. :—

The Strongylus filaria, causing an acute bronchitis, with the lesions confined to the bronchii and neighbouring parts, and the—

Strongylus refusens, causing a pneumonia, and having its lesions in the parenchyma of the lungs. I may say at this stage that the term pseudo-tubercle as applied is absurd, as there is present here a distinct process having a nematode worm as the factor in the formation of the nodules, Why should one be called parasitic bronchitis, and the other pseudo-tubercle? Why not parasitic pneumonia?

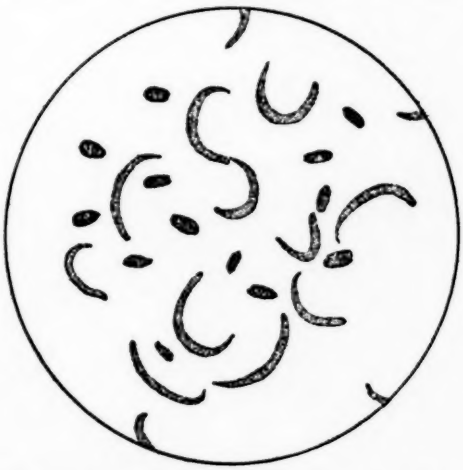
In the lungs of sheep suffering from this condition the lesions seen may be divided into two kinds :—

The first form occurs as greyish-yellow patches irregularly angular in shape, and projecting slightly above the surrounding lung tissue.

The second form is small nodules, about the size of rabbit shot, and even larger; they are disseminated throughout the pulmonary tissue, and being equally distributed in both lungs and very similar to miliary tubercle.

There is considerable difference of opinion as to the identity of the worm which causes these conditions, and as the time is short I cannot go over the ground, but it is generally agreed that the first condition is caused by the *Strongylus refuscens*, and we will now consider the condition and the active cause of it.

In Professor Raillet's work the *Strongylus refuscens* is thus described :— round-worm, slender body, reddish brown in colour, head not winged, mouth surrounded by three papiliform lips; the *male* is 18 to 28 millimetres long; the *female* 25 to 35 millimetres long, its tail is a blunt point, its vulva is situated immediately in front of its anus. The eggs are ellipsoidal, and are 75 to 120 micro-millimetres long, by 48 to 52 mm. broad. As you can see from the specimens before you, the lesions are very easily seen.



Eggs and embryos of *Strongylus refuscens*. × 80.

They are situated under the pleural surface, and project above the level of the surrounding tissue; they range from the sixteenth part of an inch to

the size of a large nut; they are either soft and elastic, or firm in consistence, and are generally found towards the upper edge of the lung at the apex, and along the under edge, but they never occur in the depth of the lung substance. If one of these patches is cut out and placed in water it will float, when cut into they yield a milky fluid; if a scraping is taken the eggs and the embryos of the *Strongylus refuscens* are seen under the microscope; the embryos will be noticed to exhibit movement.

A section through one of the patches shows the lung tissue obliterated, and the alveoli completely filled up by an accumulation of leucocytes, and in the midst of them eggs and embryos in various stages of development.

The second form is the one which most closely resembles miliary tubercle, and is of rather common occurrence, especially in the lungs of black-faced ewes; in the abattoirs in Edinburgh we find it difficult to get an adult lung free from them. The lesions are found disseminated throughout both lungs, which may be very severely invaded. They are about the size of rabbit shot, greyish in colour. and firm on pressure. They are difficult to enucleate from the surrounding tissue, and on section they may be gritty owing to calcareous deposition, or they may be in a caseous condition. If a fresh and firm nodule be separated from the tissue, and cut and squeezed, and the product examined under a microscope, it will be found to contain a long filiform worm coiled upon itself.

A section of one of these nodules shows that the pulmonary alveoli are filled with leucocytes; in the centre of them is this twisted filiform worm coiled upon itself, the walls of the alveoli are enlarged with cellular infiltration. The lung tissue between the nodules does not show much change. As to the identity of this worm, or rather embryo, as I have already stated, there is a considerable difference of opinion, and I think you will admit there is ground for it, as the microscopic and naked eye appearances are so different, for in the first condition you have eggs, embryos, and sometimes the adult worm, while in the second form only an embryo of an undetermined worm.

Professor M'Fadyean, in his *Journal of Comparative Pathology and Therapeutics* for the year 1894 writes an excellent and instructive paper on this subject. The pity is that he was unable to give a more decided opinion on the embryo in question.

In relation to Public Health this condition of the lung is very important, if we remember the harmful nature of these round-worms, and those so closely allied to them. In the paper which I alluded to Professor M'Fadyean suggests the possibility, from the distribution of the tubercles, that they may have formed round parasites developed from eggs arrested in the pulmonary arterioles, like the pseudo-tubercles caused by the *Strongylus vasorum* in the dog. In his *Veterinary Medicine* Principal Williams also states that he has on two occasions seen the *Strongylus filaria* in the cavities of the heart and blood-vessels. Though this is only a suggestion, I would ask you, gentlemen, to note that in the specimen of the generally infected lung before you there are numerous centres of infarction, triangular in shape, and these contain an embryo, or rather a developing embryo. If such should be the method of infection, greater attention must be paid to the lungs of animals suffering from this disease. I most emphatically say that sufficient attention is not given to them, as these lungs are openly exposed for sale for human food in many of our cities, and they most certainly ought not to be. In Edinburgh we are most

careful to condemn these lungs, and most rightly so, for their probable harmful nature is not generally known; I say probable, because in the present undecided state of this worm's identity and its life-history we do not know what the next host of it is, and we must not give man the chance of posing in that undesirable position. Bearing on this point it is interesting to note that Colin records the presence of the *Strongylus refuscens* in a cat's lung, and traces its presence to the eating of infected sheep's lungs; he also states that the embryos of strongyles preserve their vitality in water for two months. When we consider the opinions and observations of these authorities I think that these lungs should be condemned, and that in every case.

Gentlemen, I trust that this paper has interested you, and if it should be of any benefit to any one the writer will be well repaid for his trouble. I thank you for your attention.

Clinical Paper.

CASTRATION OF AN ELEPHANT.

BY WALTER SHAW, ESQ.

OPERATION performed by Drs. Walter Shaw, Dayton, O., and W. G. King Dodds, Cincinnati, O. The patient was the property of "The Wallace Circus Company."

For many months he was so vicious as to imperil the lives of his attendants. This elephant (Pilot, by name), was thirty-five years old, an age at which refractoriness should yield to obedience and docility. Pilot weighed 9000 lbs. and was 10 feet tall. His unruly disposition made it dangerous to exhibit him, and the devising of some means to subdue him was imperative. After due deliberation his proprietor decided to have him castrated.

In February 1889 Mr. Wallace advised us of his decision, and we visited the winter quarters of the circus on his beautiful farm on the classic banks of the Wabash, Peru, Ind.

Having surveyed the situation, we gave instructions for making excavation, platform, operating table, and all other arrangements necessary for the completion of the operation, including instruments. The manner of confining the elephant and the mode of operation are as follows, viz.—Having secured two R.R. rails on ties placed in the excavation, four large iron bands were fastened around each rail and tie beneath, for the purpose of attaching cable chains, block and tackle; the space between the rails was filled with cement and this was overlaid with heavy oak planks. His caretaker placed a large cable chain around his girth in which was a strong ring just below his chest. To this ring another cable chain was fastened and passed through a ring safely attached to his tusk, then about the anterior of trunk through another ring on opposite tusk back to ring immediately under his body. In addition to this (as a guarantee of safety) a strong rope was passed several times around his trunk and tusks. In this condition he was conducted on the platform which he held in place by means of his own weight. To each foot a large cable chain was secured, slightly slack; this was accomplished to warrant safety in the event that the block and tackle would break. His front feet were then drawn forward and

outward and his hind feet were drawn backward and outward by means of block and tackle. At this juncture the operating table, 4 feet wide and 16 feet long, was arranged beneath his body, then his feet were extended until his body came in contact with the table slightly canted to the right side. A rope was attached to each tusk and fastened at right angles. As he was put under the influence of an anaesthetic the utmost caution was exercised. Thus insensible, an incision was made in his left side through the dermis just posterior to last rib, beginning at the end of the transverse process of lumbar vertebrae, extending downward about 10 inches. The skin was an inch thick, white and almost bloodless; the external three-fourths of an inch was very viscous and difficult to cut. An 8-inch opening was made through the muscles and peritoneum, in which the hand was introduced bearing forward finding the glands just posterior to the kidneys. These glands were loosely but securely attached. The emasculator, which was made with a screw to remove the glands, broke before either gland was displaced because it was too highly tempered, otherwise it would have answered the purpose. This misfortune made it necessary to reach in at arm's length and ligature the best possible way under the circumstances and remove the glands by aid of the knife. The peritoneum, muscles, and skin were saturated in the usual manner and the incision was closed with wound gelatine. This operation was made aseptic so far as possible. The influence of the anæsthetic had waned by the time the operation was completed, and the animal did not seem to be distressed. He lived fifty-seven hours, during which time his appetite was normal, did not seem to suffer until an hour before his death. The direct cause of his death is not known, as no examination was made. With the right kind of instruments, properly constructed, this operation, which required an hour and a half, could have been accomplished in thirty minutes. Under favourable conditions, and with suitable instruments, we believe that the operation could be successfully performed, as it would then not be necessary to have the abdominal cavity open more than ten or fifteen minutes.

Extracts.

STOMACH-WORM (*S. CONTORTUS*, RUD.) IN LAMBS.

BY A. G. HOPKINS, D.V.M., B. AGR.,
Assistant in Animal Husbandry, Agricultural Husbandry Station, University of Wisconsin.

IN sheep-raising districts the stomach-worm (*S. contortus*, Rud.) has proved a serious hindrance to successful sheep husbandry. Numerous breeders have had losses of lambs during the past few summers with mortality rates in their flocks of from 15 to 60 per cent. Such being the case, an experiment was conducted at this station to determine the effectiveness of one or two remedies. Benzine had been highly recommended, so this medicament was tried as was creolin (Merck-Pearson). An experiment was under way at the station to determine the relative merits of various grains for feeding, so that the frequent weighings at regular intervals assisted in the diagnosis. Post-mortems were also held, and the stomach-worm found in the abomasum. In one case a tapeworm (*T. expansa*, Rud.) sixteen feet in

length was found in the intestines; in one other evidences of nodular disease (*Esophagostoma columbiana*, Curtice) were quite plain. Outside of these two cases the *S. contortus* seemed to be the causative factor of the rapid emaciation and loss of weight, dulness, hydræmia, anorexia, pyrexia, pica, coughing, and frequent micturition, during which large quantities of colourless urine were passed. Intense thirst was shown, lambs affected rushing to the water-trough immediately on being brought in from the pasture. Diarrhœa was not a symptom in the station flock, but has been reported in other flocks quite often.

A tonic powder of ferrisulph., nut areca, nux vomica, and red gentian was administered with practically no results. The lambs were then divided into two lots (I. and II.). Lot I. was given benzine, ℥ij, in new milk, ℥ij, on three successive mornings. Lot II. was given creolin, ℥j, in new milk, ℥ij, also on three successive mornings, the medicine being administered fasting. On the fourth morning ol. lini (raw), ℥iij, was administered to each lamb. The next weighing (some ten days later, taking place every two weeks) showed gains of from two to five pounds, which gains were continued, judged by subsequent weighings. Previous to the treatment the lambs were losing weight or else standing still. The medicine was administered as a drench by the station shepherd. Great care is necessary in drenching lambs, and unless in experienced hands fatalities often occur. To the novice a safe method is recommended—namely, a piece of rubber tubing and funnel. The tubing is slowly introduced into the œsophagus, and the medicine put into the tubing *via* the funnel. The treatment was given early in September, which is quite late in the season. Prophylaxis, by administering the aforesaid remedy to all lambs in the flock in July or August, will afford the most satisfactory method of controlling this very serious scourge. Benzine (gasoline is said to be equally effective) is probably the better remedy, owing to its cheapness and its palatability as compared with creolin. Worm powders are comparatively worthless after a certain stage. One farmer reports a loss of 180 lambs out of a flock of 400, in spite of the use of 100 lbs. of some patent worm powder.

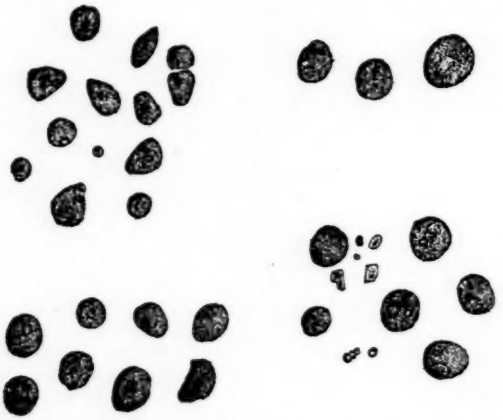
(*Journal of Comparative Med. and Vety. Archives.*)

THE CAUSES OF HORSE-SICKNESS (*PFERDESTERBE, PAARDZICKTE*).

BY V. S. RICKMANN, GERMAN S.W. AFRICA.

THE circumstance that with inoculation of blood taken from a horse, mule, hinny, or ass, at any time whatsoever after setting in of the first feverish symptom of this disease, death regularly takes place in a sound animal of this species, is good ground for the assertion that the blood is the transmitting agent of the material of infection. If virulent blood is passed through a Chamberland filter, the filtrate is not infectious, as was first shown by Edington and then by myself. The result of this is that either the blood corpuscles must be transmitters of the infectious material, or that the infectious material is free in the blood, but is too large to pass through a Chamberland filter. These results induced me to direct my main observations to investigation of the blood. At this time I had 29 sick horses at my disposal. Besides the methylene-blue eosin of Plehn and Schütz and

the hæmatoxylin-alum eosin colouring of Ehrlich, I got decidedly the best results with Ziemann's methylene-blue eosin colouring. In this latter the proportions of 1 part 1 per cent. watery methylene-blue solution to 6 parts 0·1 per cent. of watery eosin solution, with about half an hour's working of the mixture on the preparation, are the best. As soon as 3-4 days after inoculation, there are found in and outside of the red blood corpuscles very small points of dull blue colour. In the majority the red blood



corpuscle contains only one of these grains, though pretty often two of them are found. Their size varies. Sometimes they are peripheric, sometimes piled up round a centre, and often show a longish formation. On screwing up and down of the tube the middle of the grains seems more strongly refracting, whilst the peripheric portion remains dull. The blood corpuscles themselves are unchanged. After 1-2 days more there are found, in addition to these caryo-chromatophilous grains in the red blood corpuscles, a small round disc which has assumed a clear blue colour. The blue colouring is generally total, though I have also observed in some cases that while the peripheric zone was wholly coloured blue, the blue colouring towards the centre grew gradually fainter and fainter, and the centre itself showed no colouring, but was of a strongly refracting character; these latter formations gave me the impression of vesicles, which is the term I should be inclined to apply to them generally. These formations further seem to exercise only a slight influence on the red blood corpuscles. The diameter of the round vesicles is about one-fourth to one-fifth that of the red blood corpuscles. As the illness progresses, both the granules and the vesicles increase. Whilst the former are to be found in great numbers even outside of the red blood corpuscles, the latter are found almost solely inside. In very few cases did I see them outside as well, and I attribute the occurrence to the decay of red blood corpuscles or to emigration of the vesicle; sometimes, in cases of severe illness, many red blood corpuscles may be found which appear partially enlarged and pale, and almost always allow of the recognition of vacuoles. There seems to be a very small

granule, of central position, present, especially in the vesicles, floating about at liberty, as well as in those lying inside the red blood corpuscles; their existence, however, I cannot affirm as positive. In these free vesicles I was able occasionally to observe the collocation of two or three of them which hung in a row like pearls, and whose size decreased, from 1 to 3, in a slight degree. The number of white blood corpuscles gradually suffers a significant decrease. As regards further growth-formations, I would not like to form a hasty opinion, but will only report the following: In three sick horses I found, in the blood taken away shortly before death, inside the red blood corpuscles, formations which partly corresponded to the *Apiosoma bigeminum*, partly are of very great similarity to the parasites of the different malariæ of man; the latter connection comes more prominently into notice with further investigations. In regard to the latter three cases, I could clearly recognise, after a Ziemann colouring, in several very large parasites which filled up almost the whole red blood corpuscle a great reddish granule of chromatin, which was connected with the granulated protoplasm by means of an achromatic zone. A mistake on my part is not probable, as I have busied myself with human malaria both in Africa and in Berlin under R. Koch's supervision. In what connection the increase of granules, discs, &c. is to be put with the origin of the fever is not certain. It seems, however, as if with falling temperature the investigation of the blood gives the most vesicles. Whether there is an identity of human malaria with horse-sickness I leave an open question. That a connection between the two exists may be assumed; the malignant character of horse-sickness and the facts discovered remind one of pernicious malarias.

I see in horse-sickness a disease similar or nearly allied to fatal malaria of man.

(*Berliner Thierärztl. Wochenschr.*)

EXTRA-UTERINE GESTATION IN THE SHEEP.

Organs of generation intact and normal. A large strip of the broad ligament bound up this fœtal cyst to one of the horns of the matrix. The weight of the whole specimen with its envelopes was 4 kilos, which proved that the fœtus had reached its term. It was in the shape of a macaroon, and closely adhering to the abdomen with its inferior face; with its superior face it touched the epiploon. By a kind of hernia, the head of the lamb, its two front feet, and one hind one, were divided from and showed themselves uncovered by the peritoneum. This fœtus had its nails formed, had wool, and was formed by a dam in very good condition and very fat, since she was used after for human consumption. If the animal had not been killed, the fœtus would have at length ended by getting out of its envelopes, thanks to the formation of a sphacete, and thanks to the process of suppuration. The specimen is a rare one: in veterinary surgery only a dozen cases of ectopic gestation have been observed, nine of these in the sheep. The others have been found in the cow, bitch, and sow. Ordinarily in the cow a mummified tumour is observed. In women, we are told, this accident is not very rare; there then occurs rupture of certain vessels, and a retro-uterine hematoceles sets in, or rather the fœtus encysts and constitutes what doctors call lithopedion.

(*Rec. de Méd. Vétérinaire.*)

PARALYSIS AFTER PARTURITION.

Dr. Guiseppe Buttice, in the "Reforma Veterinaria," describes a case of paralysis of the hind quarters of a mare, following on fœtal dystokia. He found the animal lying in violent convulsions, while from the vagina protruded the inferior portion of the head of a fœtus. On exploration he found that the fœtus was in a dorsosacral position, and the right fore leg was hoisted over its neck in such a way that the metacarpal region, lying diagonally across the cavity of the pelvis, prevented the exit of the fœtus. He managed by straightening the limbs to draw out the fœtus, which was dead. The mare grew at once calm, and seemed almost somnolent. He ordered the following prescription, which was given for three mornings following :—

Infus. flor. camom. . . .	3 litres.
Sulph. sodæ, ...	350 grammes.

Next morning temperature was 38° C. He disinfected the uterus with irrigations of phenicated water, but the mare showed paralysis of hind quarters. He ordered rubbing with the following—

Tinct. cantharides, . . .	15 grammes.
Liquid ammoniaca, . . .	25 grammes.
Spir. camph.	100 grammes.

Nine days after the animal was able to stand; in a few days afterwards it was quite better.

Professor Marcone, in an eloquent discourse on the "Modern Veterinarian," delivered before the National Congress of Sanitarians laid stress on the growing importance of the modern veterinarian, especially from the military, hygienic, and agricultural points of view.

ON THE USE OF PROTARGOL IN VETERINARY MEDICINE.

Protargol constitutes a powerful antiseptic, and has been employed in specific affections of the urethra in the human subject. It is always efficacious in the treatment of various ocular affections. As we all know, protargol is an albuminate of silver, of perfectly stable chemical composition, and contains 8·3 per cent. of silver. It appears in the form of a yellowish powder, soluble in water, glycerine, and the serum of the blood. In order to obtain a perfect solution, we begin by moistening the powder, then we submerge it in water and stir it with a glass rod. We thus obtain a solution of a yellowish brown colour, quite clear, which presents this peculiarity, distinguishing it from all other solutions with a base of silver, namely, that it does not precipitate chloride of sodium. Under the influence of the light this produce darkens in colour; it is therefore desirable to keep it in dark-coloured bottles.

Protargol enjoys he eminently bactericidal properties of nitrate of silver, but it possesses the great advantage over the latter of not being irritant, even on very sensitive mucosæ, such as the conjunctiva and the mucosa of the urethra. On the other hand, not being caustic, it penetrates farther into the tissues, and can exercise its disinfecting action on points which we could not reach with nitrate of silver.

Two cases of the use of protargol have come under our observation. The one was that of a dray-horse, which, as the result of a fall, had contracted a penetrating sore of the hock joint. The following day the animal showed symptoms of acute arthritis; he could scarcely rest on the injured limb, the whole hock was swollen and painful to the touch. At every movement made by the animal one could see a certain quantity of synovia, transparent, but a little darker in colour than the normal, escaping by a small wound situated on the inner surface of the hock, a little behind the internal lateral ligament of the articulation. It is probable that this colouration was due to a certain admixture of extravasated blood. The animal seemed to be in great pain, for it groaned every time it was obliged to rest on the affected limb, appetite had almost vanished, pulsation was accelerated, and the artery distended. Rectal temperature, 30°·9 (Cent.) Considering the case a very serious one, we set at once about the treatment which we had found successful in cases of articular wounds, namely, the introduction into the trajectus of a small twist (lamp wick) soaked in a solution of corrosive sublimate (4) in collodion (30). This treatment was again applied on the two following days. In addition, in order to discover the source of the inflammatory symptoms, and to obtain an energetic excitement of the affected tissues, we applied over the whole hock two plasters as follows:—

White vaseline, - -	100 grammes.
Camphor, - - -	20 „
Cantharides.	
Corrosive sublimate, -	12 „

After three days of this treatment we found that there was no favourable result. On the contrary, the swelling had spread farther up, and the discharge had changed in appearance; the synovia had a greyish colour, indicating a mixture of pus, and contained indeed some small purulent flakes. The pain shown by the horse was extreme, the eye was staring, and the nostrils greatly dilated. The affected limb was no longer of any use as a support, the hock was quite flexed, and the limb held up to a certain height. In order to remove the symptoms of pain, and to stop the infectious lesions in the serosity of the joint, we determined to subject the animal to continuous irrigation, and improvised a sling with the help of a kind of mattress. The animal, thus suspended, was enabled to relieve the healthy hind leg, and so to escape foundering by prolonged resting on it. This treatment was continued for twelve days without there being any cessation in the escape of the fluid. We had taken care to repeat thrice the introduction of the sublimated collodion in the articular fistula, but in spite of all our endeavours the situation grew gradually worse. The general condition of the animal became wretched, and the injured hind leg, not having touched the ground for fifteen days, showed pronounced emaciation of the muscular masses of the croup. We were on the point of advising the slaughter of the horse, when it occurred to us to try protargol. We injected on three consecutive days about 30 grammes of an aqueous 3 per cent. solution of protargol. The effect was surprising, for on the second day the horse supported itself on the injured leg, and tried to alter its position in the stall. On the fifth day we managed to get the animal out and make it take a few steps in the stable. The appetite had returned, and the eye indicated a distinct diminution of pain. Local conditions had

improved to the same extent, the swelling of the hock was limited to the joint, whilst the synovia, which still flowed abundantly from the fistula, had become once more clear, and no longer contained purulent flakes. Eight days after the first injection the synovia ceased flowing except to a trifling extent. The animal was sent out to grass, and now only a slight limp exists, from which we hope to relieve it by blistering or deep firing.

The second case is not less interesting. It is that of a hunter, which in consequence of a fall had received a wound on the level of the external cartilage of the off fore-foot. The wound was very deep, irregular, more or less ragged, and affected the corresponding cartilage in three-fourths of its thickness. When we saw the animal the wound had already been several days in existence. It was absolutely infected, gave out a disgusting smell, and presented a very ugly purplish appearance. The pus had made a pouch at the heel, so that a collection of it had been produced at the level of this region. In spite of all the care bestowed upon the wound, it had not been possible to avoid infection. It appeared, however, that some wiseacre had thought it right to apply, unknown to the veterinary surgeon in charge of the case, a poultice of linseed meal, with the object of "relieving the inflammation." He had merely succeeded in infecting the wound still further. Another circumstance helped to darken the situation; the horse had undergone six months previously high and double plantar neurotomy on the same limb. The application of sublimate having produced no favourable results, we tried the protargol treatment after removal of the heel and part of the quarter. The solution of protargol was a 3 per cent., and the application was renewed every day. On the third day a complete transformation took place. The wound had no longer any smell, the base of it was filled up with buds of a pink colour, and the leaden tint had disappeared over the whole extent of the wound. The applications were continued, and to our great satisfaction cicatrisation went on so well and so quickly that at the end of a month the cure was complete.

(Professor F. Hendrickx in the *Annales Vét.*, July 1900.)

ON THE RAPID DIAGNOSIS OF RABIES BY THE EXAMINATION OF THE BULB OF THE BITING DOG.

I HAVE already described the lesions of rabies in man and in the dog, spontaneous or experimental. On comparing my researches with those of other authors, I came to the conclusion that the lesions consisted of accumulations of embryonic cells in the region of the central canal, and especially round the large modified cells of the motor centres of the bulb and the marrow.

In the month of April 1892 I published in the *Annales de l'Institut Pasteur* a paper on the same question, insisting therein on the profound modifications of the nervous cells, and on the possibility of making the rapid diagnosis of rabies by examining the bulb and the marrow of the biting dog.

I had observed a particular central or peripheric displacement of the colouring substance of the cellular protoplasm, a fact observed later by Marinesco; I had made drawings and described the vacuolary degeneration, the total disappearance of the colouring elements, the loss of the prolonga-

tions, the progressive modification, even to disappearance of the nucleus, the dilation of the pericellular space, and the invasion not only of this space but also of the nervous cell by the embryonic elements, and at the same time by the small particular corpuscles, hyalin or brownish, and partly of changing colour, surrounded by a pale zone. Certain nervous cells are surrounded by a large zone of embryonic cells, thus forming nodules, which I have called rabic nodules. There always exists at the same time in the bulb of mad dogs a dilation of the vessels, which are obliterated in places by thrombi formed of leucocytes, but enclosing little corpuscles, often elongated, brown, changing in colour, hyalin, disposed in heaps, in the shape of a star or a crown, by free granulations and by fibrine. These thrombosed vessels give rise to bleedings; they are surrounded by large zones of embryonic cells, which also abound in a diffuse fashion in the fundamental tissue of the grey substance. In certain cases the grey substance is so infiltrated with it that one has to deal with acute inflammation, accompanied with pale blotches, due to the fact that these nervous cells are denuded of colouring substance.

In our surgery for dealing with rabies all mad dogs which have bitten either men or animals, even the dogs which serve as experiments and sometimes also the control animals which have died of other diseases, are examined, specially in the two following ways:—Part of the brain is injected into rabbits by the intracranial passage, and a transverse section of their bulb is hardened in formalised alcohol. The next day it is cut and coloured by phenicated fuchsine and by methylene blue, or by polychrome. It is dried and mounted, and the section is examined through a lens; an examination of from one to five minutes is sufficient to take our bearings. If embryonic nodules are observed in the grey substance along with a perivascular or general embryonic state, and with discoloration of the colouring elements, it is certain that the dog has been mad. These lesions taken as a whole are thoroughly characteristic, and van Gehuchten appears to me to be wrong in considering them as harmless. What makes me more convinced of this is, that since 1891 we have examined in a regular manner the bulb of 487 dogs which had bitten. In every case inoculation had been performed by trepanning one or two rabbits. In forty-two cases the rabbits died of some other disease, or through an accident; in thirty-five cases they did not die; while 410 of them died of rabies in from seven to thirty-six days after trepanning.

In 384 cases I had diagnosed rabies after a microscopic examination; in thirty-seven cases I had decided against rabies; and in sixty-seven cases I had not been able to decide definitely, the microscopic section having been either badly treated or the marrow being quite decayed, or else, instead of the bulb or marrow, an uncharacteristic part of the brain had been taken. The 384 rabbits inoculated, whose marrow had been already declared rabid, all succumbed to rabies, while the thirty-five rabbits which lived correspond exactly to the thirty-five marrows examined and declared beforehand to be not rabid. In two cases declared negative the rabbits died the second and the fourth days after inoculation,—that is, of course, of some other disease than that of rabies.

I believe, then, that I am right in asserting that the microscopic examination of the marrow of a dog which has bitten must be regarded as one of the best means of rapid diagnosis which we possess at the present day in medicine. It is also perfectly certain that the trepanning of rabbits

is still less liable to error, on the understanding that the head or the bulb of the biting dog is furnished. Besides, putrefaction does not prevent the histological examination so much as it does experimenting on a rabbit. Thus, in the two cases where the experience had given no result, the microscopic examination could still guide us. If the time is considered—a month in certain cases—which elapses between trepanning and the death of the rabbit, the advantage of my method will be appreciated.

How many persons who have been bitten hesitate to get inoculated, not knowing whether the dog that bit them was mad or not! How often we ourselves hesitate to inoculate nervous, feeble people when they have been merely scratched! Then there are others who live a great distance away, and for whom the treatment signifies a grave material loss, or who do not know if they have been bitten or scratched or not, or who have perhaps been bitten through clothes which show no signs of tearing or scratching.

Another reason, even more convincing than the former, which imposes in an imperious manner the rapid diagnosis of the biting dog, is the fear of accidents, fortunately rare, which may follow as the result of the treatment. These accidents consist of nervous troubles, myelitic paralysis, more or less grave, recently noticed by various writers, as well as by ourselves. In particular we noticed one case where a temporary paresis was produced in a child bitten by a dog of suspected symptoms, but where the trepanned rabbit survived, and a serious paralysis in the case of a lady who later declared in a categorical manner that the little wound she had was not the result of a bite.

In the face of these considerations, I cannot understand why the different antirabic institutions have not tested and applied my method of rapid diagnosis of rabies in the dog. Perhaps my own limitations published in my writings, or perhaps the fear that the method is too complicated or difficult to practise, have been the cause of these hesitations. I am convinced that sooner or later this method will compete with or even take the place of examination by the trepanning of rabbits. One can always be sure by this method that the biting dog has not been mad. If in a few cases there is any doubt, the antirabic treatment can always be applied to the person bitten.

In a long series of experiments I have had my observations controlled by the higher school of veterinary medicine, which sent me the bulbs of dogs dying from different diseases, or even killed, and I have always succeeded in deciding by a microscopic examination as to which dogs had died of rabies.

(M. V. Babes in a paper contributed to the *Bulletin de l'Académie de Médicine*, April 1900.)

TETANUS IN A DOG AFTER EATING ROTTEN FOOD.

A POINTER had eaten a piece of rotten ox intestine, and showed for a few days only loss of appetite, and an inclination to crawl into his kennel. On the fourth day of his illness I saw him, and prescribed saline purgatives, which brought about abundant foul-smelling defecation. On the fifth day twitchings of the facial muscles were noticeable; the eyes were sunken,

and the head was held backward. Saliva flowed abundantly from the mouth, and the dog frequently bolted from his kennel, swam through a river, and then returned home. In doing this he howled in a peculiar way, so that the owner was afraid he was mad. I had him tied up in his kennel, and watched him. On the sixth day he had taken no food, and sat on his haunches, with his fore-feet stretched out, and his head sunken. His tongue hung loosely from his mouth, and the muscles of his face twitched convulsively. The flow of saliva was profuse, and there were distinct signs of difficulty in swallowing. I ordered broth, milk, and white of eggs to be administered to him by means of a tube, but the operation seemed to excite him, and he bit all round him, and had muscular twitchings over all his body. Although milk with calomel and salol was several times administered his condition grew worse. The cramps went on increasing till the eighth day and became tetanic, with short intervals of rest; they could be alleviated, but not removed, by doses of bromide. A touch on any part of his body produced trembling, cramps, and painful howling. He voided urine and fæces daily. His gait became so staggering and unsteady that he frequently fell over on his side. He was reduced to a skeleton, but still answered to his name. On the fifteenth day he was completely paralysed, but sensibility still remained, so that pricking and electricity caused him pain. The cramps spread over his whole body, and on the eighteenth day he died, completely paralysed. Post-mortem examination gave almost negative results. The thoracic and abdominal organs were slightly reddened, especially the submucosa. In the intestines a few tiny ulcers were found; but, generally, stomach and intestines were empty.

(Vet. Surgeon Alessandrini in the *Giornale dell' Académie Vet. Italiana.*)

INTERNAL SECRETION OF THE TESTICLE.

THE testicle is a glandular organ with two secretions, excremental (see the sperma), recremental or internal. These two secretions are very distinctly marked and well defined. There are indeed vigorous individuals possessing all the attributes of virility, and are yet sterile (Observations of Robin and Brown-Séquard). Juvenal relates that in ancient Rome eunuchs were sought for by the Roman ladies "Quod abortivo non est opus." But Juvenal affirms that they were neither spodices (imperfect eunuchs) nor thlasiæ (castrated). Virility is therefore not bound up with the excremental function of the testicle. Surgery gives us absolutely convincing examples.

In 1880 Bardenhener made the first epididymectomy in the case of primitive tuberculosis of the testicle. This operation did not cause the atrophy of the testicles; the subjects operated on became sterile, but did not remain impotent. In a letter from Austria, of 31st October 1891, M. Lode speaks of this testiculary operation. This author removed the testicles from cocks and introduced them under the skin of the same animals. In the great majority of cases the organ remained living and vascularised, and the cocks thus treated did not become geldings but preserved all the characteristics of virility. Veterinary surgery gives us many an example of cryptorchid horses which have retained their virile instincts after removal of the epididymus, which was very highly developed

and taken for the testicle. The result of all these facts is that virility is dependent on the testiculary organ even when deprived of its excremental function. As regards production of the sperma, Lode has found that repeated ejections cause an exaggeration of production of the spermatozoa, but that this augmentation did not reach a certain limit. Thus this author, after having made four extractions of sperma in one afternoon, found that eight days after the number of spermatozoa was diminished. Lode thinks that we have here to deal with a question of a resorption of spermatozoa, and that it is perhaps to the products of this resorption that virility is due. The internal secretion of the testicle is highly important. In the young subject the testicle is as yet only a genital gland in the potential state, its internal function is not born; but it is in this case that its internal secretion has an enormous influence. If at this moment the testicle is suppressed, the entire organism will be affected (eunuchism). On the other hand, if excretion is artificially suppressed by ligature of the different canals, what becomes of the glandular organ? This experiment has been made by numerous authors (Ravoue of Palermo, White, Guyon, Harrisson, &c.), and the sum of the different accounts published up to the present day resolves itself into the following conclusion. The testicle continues to develop and to secrete spermatozoids (Cooper, Burling, Gosselin, &c.). The testicle is then an exception to the physiological law which would lay down that the majority of the glands atrophy after ligature of their excretory canal. As on the other hand the spermatic fluid does not accumulate and is resorbed, we have tried to trace the influence of this resorption on the organism. With this end in view we have divided our experimental subjects into two groups:—

I. Young animals in which spermatogenesis was not yet established.
II. Animals in which it was established.

First Group.—*First Observation.*

Rabbits A, B, D, of the same mother, a month and a half old on 16th November 1898, on which date they were operated on.

B—Section and ligature of the deferents.
D—Castration.
A—Served as a check.

The experiments, stopped on 22d April, gave these results:—

	Mean daily Weight.	Mean daily Fattening.	Urinary Weight every 24 hours, and per kilo of Rabbit.	Weight of excrements every 24 hours, and per kilo. of Rabbit.	Total Azote per 24 hours, and per kilo of Rabbit.	Urea per 24 hours, and per kilo of Rabbit.	Certificate of Oxydation.	Phosphates 24 hours, and per kilo of Rabbit.
	Kil.	Gr. C.	Gr. C.	Gr. C.	Gr. C.	Gr. C.	Gr. C.	Gr. C.
A	1 790	5 32	50 08	18 —	0 425	0 619	0 6820	0 008
B	1 855	6 67	44 94	15 7	0 332	0 427	0 6001	0 008
D	1 745	6 61	55 15	21 2	0 439	0 537	0 5708	0 011

From 22d April to 1st July the animals were set at liberty together in a courtyard; when killed on 1st July they gave the following figures:—

	Total Weight.	Weight of Blood per kilo of Rabbit.	Weight of Skin per kilo of Rabbit.	Weight of Skeleton per kilo of Rabbit.	Weight of Muscles and Fat per kilo of Rabbit.
	Kll.	Gr. C.	Gr. C.	Gr. C.	Gr. C.
A	2 025	16 29	135 8	59 75	0 550
B	2 050	21 46	137 5	66 82	0 533
D	2 075	14 45	120 4	67 47	0 474

Testicles and Prostate.—Testicles of B as large as those of A; epididymus larger and harder, and crammed with normal sperma. The prostate of B of volume and weight sensibly equal to A. As to D, no trace of prostate. On microscopic examination testicles of B were normal. There were found, as in the seminiferous canals of A, bundles of spermatozoids, proving that spermatic secretion continued to be produced. The only difference existed in the epididymus. The diameter of the spermatic canal was doubled in diameter (comparatively to the epididymus of A), and the interstitial conjunctive tissue was denser and thicker. As to the prostate, no difference between A and B; the acini of glandulares were unchanged, as well as the interstitial connective and muscular tissues, which were neither atrophied nor hypertrophied. Section of the deferents had therefore no notable effect on the testicles and prostate; it brought about a diminution in the activity of the organic changes and produced a notable increase in the weight of blood and skeleton.

No. 2.—Concerns two young guinea-pigs, a month old, but not of the same mother. I will not attach great importance to the comparative experiments made on the guinea-pigs, for the animals were not of the same mother, so that there were at work differences of individuality which made it impossible to establish parallelism between the subjects. I made them especially from the point of view of influence of the section of the deferents on the glands annexed (prostate and seminal vesicles). The two guinea-pigs are—

A.—Section of ligature of deferents, 1st February 1899.
B.—Check.

When they were killed on 1st July the results obtained and brought to a standard (kilo of animal) were the following:—

	Daily fattening.	Wt. of skin.	Wt. of skeleton.	Wt. of muscle and fat.
A.	3 gr. 5	278 gr. 9	105 gr. 2	742 gr. 0
B.	2 6	266 6	133 3	673 3

The quantity of urine daily voided being so feeble, it was impossible to make a qualitative and quantitative analysis. There was no macroscopic and microscopic difference between the testicles, epididymi, prostate, and seminal vesicles of A and B. We shall draw no other conclusions, though there was a notable increase of fattening and slight diminution of

the weight of skeleton, and that because of the difference in individuality of the two subjects.

No. 3.—Young hunting dog, four months old, operated on by section and ligature of deferents on 6th July 1898. We were not able to slaughter it, for it was not our property. We had another who died accidentally of distemper, two months only after the operation; we could note nothing peculiar about it. The one that was left, the subject of this observation, became a very fine dog and a good hunter. He always remained a little lean, and very powerful when he met his brothers by the same father, who were rather fat and slightly apathetic. When he ran after bitches his testicles became very voluminous, so much so as to retard the movements of the hind legs, but they resumed their normal volume some days after. As to his prostate, examined at the end of July 1899 by rectal touching, it was found to be almost equal in volume to that of his father, who was six years old. The operation hence seems to have augmented the nervousness of the animal and had no injurious influence on his special aptitude. As a practical application, this operation might, therefore, be tried on certain animals from which the owner is not specially anxious to breed, without being obliged to resort to castration, which, in hunting dogs in particular, abolishes or considerably weakens the instincts.

Group II.

Obs. 1.—Newfoundland dog, nine years old, weight 34 kilos, walking with hind quarters slightly drooping as if attacked with paraplegia; attacked further with amaurosis. On 7th October 1897 the operation of section of the deferents was performed. Slaughtered on 12th January 1898, he weighed 34 kil. 150. The testicles had not changed in size; the epididymus, however, was about twice as big as at the moment of operation and crammed with spermatozoids, mostly normal and with heads and tails separated. The animal had not perceptibly fattened; his coat had become brighter. Neither his appearance nor his gait were ameliorated, but his scent was very fine and guided him perfectly. Further, the animal had become very vigorous and combative; that is why, among other reasons, we were obliged to kill him so soon. This dog came from a knacker's, where he ate meat to satiety, while with us he had nothing but soup, without meat; the feeding was therefore not the cause of this increase in vigour. Macro- and microscopic examination of testicles and prostate revealed no atrophy or hypertrophy. The epididymus alone was large, hard, sclerous, the latter due to a densification and thickening of the interstitial conjunctive tissue, and to a dilation of the spermatic canal.

Obs. 2.—Hunting dog, four years old, operated on 21st October 1897. This dog never made any perceptible change in weight. Being of a very fiery disposition he used to grow very lean when running after bitches. His testicles used to become enormous, the two of them were as big as and even bigger than the clenched fist; after a few days these organs would become normal again. As regards character, this animal, who had always been very fearsome, had become very aggressive towards his fellows, and that at all times. He was more powerful, and in his numerous fights he often bowled over opponents apparently more muscular and stronger than himself. At the end of December 1898 the right testicle was extirpated in order that a macro- and microscopic examination might be

made of it. We found in it nothing abnormal, except in the epididymus a sufficiently perceptible increase of the diameter of the spermatic canal and a densification of the interstitial conjunctive tissue. May 1899 the animal was killed; the left testicle remaining was normal in volume. The same peculiarities were noticeable in the epididymus as before. The prostate was normal in volume and its two lobes perfectly equal. Microscopic examination showed neither atrophy nor hypertrophy.

Obs. 3.—Three rabbits, about four to five months old, but of absolutely different origin.

No. 1.—Operated on 29th September 1897; section and ligature of deferents.

No. 2.— Do. do.

No. 3.—Castration.

From 15th October 1897 to 30th January 1898 the results obtained were as follows:—

	Total fattening from 15th October 1897 to 30th January 1898, and per kilo of rabbit.	Daily urinal weight per kilo of rabbit.	Ureal weight daily per kilo of rabbit.
No. 1.	0 kil. 051	90 gr. 3	0 gr. 287
No. 2.	0 048	95 5	0 325
No. 3.	0 426	133 0	0 487

We were not able to continue this observation, and the animals were killed. In rabbits 1 and 2 the testicles and prostate were normal, excepting always a densification and thickening of the conjunctive tissue of the epididymus, and a dilation of the spermatic canal. As to No. 3 the prostate was reduced to a small fibrous lump of about the size of a pea, in which we could find no trace of an acinus glandularis.

Obs. 4.—Four rabbits of the same mother, aged three months at the time of experiment.

Operated on 15th September 1898.

A.—Section and ligature of deferents.

B.—Check.

C.—Castration.

D.—Angioneurectomy.

From 1st October 1898 to 6th April 1899 the successive weights and numerous analyses of urine (two a week) gave the following results:—

	Mean daily Weight.	Mean daily Fattening.	Urinary Weight every 24 hours, and per kilo of Rabbit.	Weight of excrements every 24 hours, and per kilo of Rabbit.	Total Azote per 24 hours, and per kilo of Rabbit.	Urea per 24 hours, and per kilo of Rabbit.	Certificate of Oxydation.	Phosphates 24 hours, and per kilo of Rabbit.
	Kil.	Gr. C.	Gr. C.	Gr. C.	Gr. C.	Gr. C.	Gr. C.	Gr. C.
A	2 669	2 20	14 0	28 88	0 334	0 518	0 7237	0 0144
B	2 462	4 73	13 0	33 67	0 337	0 526	0 7283	0 0132
C	2 626	4 36	13 0	32 10	0 367	0 554	0 7044	0 0141
D	2 608	1 86	15 0	34 57	0 309	0 462	0 6977	0 0106

These animals (or in all our comparative experiments) got exactly the same feeding, qualitative aud quantitive. From 7th April 1899 the animals were set at liberty together. When they were killed on 4th July the results were :—

	Total Weight.	Weight of Blood, &c.		Weight of Skin, &c.		Weight of Skeleton, &c.		Weight of Muscles and Fat, &c.		Weight of Testicles and Prostate.	
	Kil.	Gr.	C.	Gr.	C.	Gr.	C.	Gr.	C.	Gr.	C.
A	2 475	25	45	167	0	68	0	497	0	11	0
B	2 905	33	73	168	0	61	0	524	0	13	0
C	2 635	18	21	139	0	58	0	515	0	0	0
D	2 340	17	09	145	0	58	0	565	0	0	0

From the macro- and microscopic point of view the testicles, epididymus, and prostate of A and B were identical. In A there was no perceptible hypertrophy of epididymus, or in our other observations. In rabbits C and D no longer a trace of prostate ; the testicles of D operated on by angioneurectomy had undergone a complete aseptic resorption.

Observation 5.

A series of five guinea-pigs, aged, got from almost anywhere. Here are the figures :—

Nos.	How treated on 1st Feb. 1899.	Initial Weight.	Final Weight at 1st July 1899.	Total Fattening per kilog.	Skin—Weight per kilog.	Skeleton—Weight per kilog.	Weight of Muscles and Fat per kilog.
1	Castration.	Gr. 700	Gr. Accidental death in May.	Gr. —	Gr. —	Gr. —	Gr. —
2	Section of deferents.	595	775	+ 262	240	84	613
3	Do. do.	740	636	- 151	220	69	494
4	Vasoneurectomy.	675	537	- 227	217	70	465
5	Check.	685	550	- 218	181	68	457

Testicles from macro- and microscopic point of view :

1. Castrated.
2. Normal, slight hypertrophy of epididymus.
3. Normal, hypertrophy of epididymus more accentuated.
4. Complete aseptic subresorption.
5. Check.

Prostate.

No. 1. Pretty clear regression of acini glandulares (in May).
No. 2. Normal.
No. 3. Normal.
No. 4. Reduced to a small, hard, and fibrous knot (pin-head).
No. 5. Normal.

Seminal Vesicles.

No. 1. Length, 6 centim. in May.
No. 2. „ 5 „ diameter also reduced by a half.
No. 3. „ 4 „ „ „ „
No. 4. „ 4 „ comparatively to that of No. 5.
No. 5. „ 10 „

GENERAL CONCLUSIONS.

In all these observations there are many contradictory results, but we believe we can draw some conclusions from them. We may say that section of the deferents slightly diminishes the urinary secretion, and in no way modifies the prostate, at least in an animal whose physiological functions are normal. In guinea-pigs we have seen that this operation has likewise not acted on the prostate, but has caused very marked atrophy of the seminal vesicles, at least in aged animals. From the point of view of its action on the general organism, this operation has had a manifest effect, especially as regards the total azote and urea, which have been considerably diminished; there has therefore been in the two groups of experiments a diminution of the organic transformations. As regards blood-weight, the results are contradictory; very much increased in young (Group I., Obs. 1), slightly diminished in aged animals. As for the skeleton, the operation has markedly increased the weight in both groups of animals. The functions of the subjects have been rendered more active; this may be absolutely affirmed. All our subjects operated on became much stronger than the checks. As regards the dogs, I have already spoken of this point, but it was still clearer in the case of rabbits and guinea-pigs; of two mules—one operated on, the other normal—where put together with a female, it was always the animal operated on that was the stronger and succeeded in eliminating his adversary.

Section and ligature of the deferents, therefore, seems to bring on resorption of spermatozoids, results analogous to injections of testicular liquid, but here we have no sudden measures; the injection is slow and continual.

(M. Pruneau in *Rec. de Méd. Vét.*, June 1900.)

THE OPINIONS OF A WAR CORRESPONDENT.

PRETORIA, *June* 28.

ONE realises that our Army was planned for almost any purpose but that of war, chiefly when considering the operation of its minor departments. Of the value and faults of these departments the Army Veterinary Department is typical. Working without stress it runs prettily enough; burdened with the weight of war it ceases as a coherent faculty to exist at all. The waste in horseflesh during the South African campaign has been little

short of appalling, and for that waste the inadequacy of the Army Veterinary Department has been largely to blame. Not that the members of that department are responsible for its failure. With the material at their disposal they have done what they could; where they failed, failure was inevitable, and could easily have been foretold.

THE CAUSE OF FAILURE.

In war, where a regiment discards its horses by the hundred, the peace capacity of the department is swamped at once. Hospitals have to be organised along the line of march, sick horses have to be collected, convalescents to be transferred to grazing farms, the cured to be forwarded, the dead to be buried, and constant attention dispensed to all. For this not only does no provision exist in England, but the organisation of the department goes far to prevent any effective improvisation. It has, to begin with, no subordinate belongings. Everything it is supposed to have belongs to some one else. Its farriers and shoeing smiths are regimental property; it cannot call any fragment of its scattered soul its own. It is at the beck and call of every emergency, not as a department, but as a loosened bundle of units. When a hospital has to be improvised on the line of march, there exists no nucleus for expansion in the shape of a staff. Its officers, attached and detached, worked already beyond the limit of effective capacity, cannot be spared for duties not immediately connected with the army in the field. Even if they could, they carry with them no executive control, and there is no subordinate department to be controlled by them. Application is made to the handiest cavalry regiment for an officer to look after the hospital, and the officer forthcoming is, as may be imagined, not the one whose services will be most missed. Colonels of cavalry regiments on active service, probably already underhanded, do not detach their best men to look after sick horses, and it is generally a "stiff-un" who takes charge of the hospital; and the cavalry officer selected for his incapacity can be "stiffer" than any of the horses he is ever asked to handle. It would be cheaper, wiser, and more effective, with our present inadequate arrangements, at once to shoot every horse that cannot be cured on the line of march.

THE CASE AS IT STANDS.

The Army Veterinary Department is undermanned at present, even on its peace footing. A high standard of excellence is demanded of those who would enter, yet the service is not made sufficiently attractive for men of ability. A bribe in the shape of good starting pay is thrown out to the subaltern, but there the advantages of the service end. Consequently, the best men go into civil employment, and from that source the army counts on getting auxiliary assistance when its own meagre capacity is overstrained. In our South African campaign two-thirds of the veterinary officers had to be drawn from outside the army. Now, though a few good men may be forthcoming from patriotic motives in such an emergency, the majority of such hurriedly enlisted recruits are certainly neither in standing nor in knowledge on the level of the men with whom they have to work. Even were their qualification all that could be wished, they would have acquired little experience in civil life to deal with the everyday contingencies of a campaign. Most of the ailments from which horses suffer on service are

military specialities. The experience of a man who has always had to deal with horses regularly and adequately fed, and for which the indicated drug, the required appliance, or even the needful rest are always forthcoming, is astray when confronted with the outcome of starvation, and obliged to treat with make-shift remedies the victims of starvation, ill-feeding, and overwork. Sore back, the outcome of long-continued pressure on shrunken muscle, collapse from exhaustion, and want of water, the various diseases of the blood which come from over-heating food, he has probably never had seriously to consider. Rest, his panacea for many ills, he cannot prescribe on a campaign. He has never had to make pads of straw bottle-cases to prevent the breaking of a sore; never seen the artillery 'bus-horse fed on patties of wheat flour and chopped straw, never had to replenish his medicine chest from the commissariat stores, and to devise substitutes for what cannot be found there. From two to three years are required to make a veterinary surgeon proficient in army ailments, and one campaign at least is needed before he comes to his full value on active service.

"SWEATED DRY WITH PAIN."

A case in point occurred at Welgelegen. A field officer's charger, a very valuable animal, which had been ailing the day before, and had in consequence been led that morning, fell exhausted in a donga on the south side of the spruit. Neither force nor persuasion could induce him even to lift his head. Two civil surgeons, after listening to the symptoms, diagnosed the case respectively as sand colic and acute rheumatism, and each agreed it was quite impossible the horse could be moved. The third to see him as the column moved by was a young Army vet., who had learned his business. "Give him as much water as he wants, and drive him into camp," he said, shortly. The water was brought, the horse drank greedily, and staggered on into his lines. "What's the matter with him?" repeated the youngster as he watched the horse move,—"he's got laminitis, and has sweated himself dry with pain." That is but one instance of the advantage of familiarity with diseases most prevalent in the Army.

NEEDFUL CHANGES.

But the alterations we need are fundamental, the department must have a new basis. Fundamental, since it must begin for the first time to be a department. It must have a subordinate staff, and that staff must be its own. It must draw likely men from cavalry regiments, train them in its schools, and dispense them when trained where they are needed, but as members of the department now and of the regiment no longer. Thus a Veterinary Department will at last be formed, controlled by its own officers, and though distributed throughout the service, with units always available when required to supply a staff for emergency hospitals in time of war, or to undertake any such pressing duties in the field, for the fulfilment of which the Army Veterinary Department should be alone responsible. Since a tendency seems to exist to supplement our deficiencies in times of stress from the auxiliary forces, there is no reason that yeomanry vets. should not undergo a month's yearly training, and be retained for employment when required in the field. Also, seeing the drain on the establishment in time of war, retired surgeons might be called out on such occasion for home service, and thus every man under a certain age made available for service in the field.—*Sheffield Daily Telegraph.*

A COMPLIMENT FROM OUR AMERICAN COUSINS.

WE trust we shall not be adjudged guilty of vanity for publishing the following extract from the New Orleans *Daily Picayune* of 6th July. It is not very often that our cousins on the other side of the Atlantic find reason to compliment us, and it is therefore all the more gratifying to come upon such a frank and kindly acknowledgment. We are glad to say that Mr. Williams is making rapid progress towards recovery since his return to England.

"PROFESSOR WILLIAMS RETURNS TO ENGLAND.

"Professor W. Owen Williams, of the British Army Veterinary Service, who has been very ill at the St. Charles Hotel for some time, will return to England on the steamship 'Mexican,' which sails from this port to-day at five o'clock.

"Professor Williams is an able man in veterinary surgery. Associated with his father, they are at the head of the New Veterinary College at Edinburgh, Scotland, one of four such institutions in Great Britain.

"Coming to New Orleans as the veterinary officer in charge of the sick lines and of the stock shipments, Professor Williams soon organised the work thoroughly. Hospitals were established, and order was created everywhere. Since his arrival six months ago he has handled about 30,000 mules and horses.

"And there has been no complaint about the cargoes of stock shipped out from here. Probably a like record does not exist to the credit of any other port in the world.

"Just previous to his arrival a system of vaccination and inoculation had been inaugurated for the mules received here destined for South Africa. Professor Williams soon found means of abandoning that slow process, and of reaching the same ends in other ways.

"Upon arriving in Liverpool Professor Williams will report to the War Office. The staff which he organised in this city will continue the work here.

"Professor Williams made many friends in New Orleans, who will greatly regret to learn of the unfortunate circumstances that compel his unexpected return to Scotland. He was a guest of the leading clubs of the city, and was a familiar figure in the little group of English Army officers to be seen in the St. Charles rotunda every evening."

THE NATURE AND PREVENTION OF "HORSE SICKNESS."

SIR—At a recent meeting of the Grahamstown and Eastern Province Branch of the Medical Association Dr. Edington, the Director of the Colonial Bacteriological Institute, made a most elaborate communication on the subject of horse sickness, and described his method of protective inoculation. He showed, *inter alia*, that—

1. Horse sickness was of a malarial nature.
2. That "salted" or recovered horses are liable to "secondary fever" at irregular intervals after "salting."
3. That he has been able to transmit the disease to other species of animals, as oxen, goats, and sheep.

4. That the susceptibility to the disease is of the most varying order.

5. While in the horse virulent blood almost invariably kills, when the virus is attenuated (by methods which he devised) its effect varies greatly in different horses; in some few it may kill, in others cause reaction with "salting," while in others no effect may be produced.

In regard to serum derived from recovered animals he has shown that, whether simple or fortified—

1. It possesses no degree of curative action which in practice would be of the slightest use.

2. Fortified serum—that is, that derived from recovered animals which subsequent to recovery have received progressively increasing doses of virulent blood up to 1000 c.cm.—is toxic if the animal is bled within a month after the last inoculation, but this toxicity wears off in the animal. Such toxic action is only brought into play when this serum is used to inoculate already infected animals, and then sets up most interesting and important changes, which are followed by death.

3. Such serum, when inoculated, even in large doses, produces no serious results.

4. Serum has practically no effect in producing passive immunity, indeed we believe that no true immunity is ever produced at all; salted horses are protected, but are not possessed of true immunity.

5. Dr. Edington has devised a method of protecting horses by the use of combination of prepared serum and preserved virus. This method, which is the only one I have found to be of real practical value, necessitates a series of four inoculations, of which the dose of serum, used with a "constant" dose of virus, is gradually decreased until virulent blood by itself is used.

As showing the enormous difficulty in protecting animals, I might say that where no reaction has been produced, and the animal has even completely resisted thereafter a small dose of virulent blood, the inoculation of the same dose of virulent blood fourteen days later may set up the disease, and death in some instances may follow.

I anticipate that Dr. Edington's report, now in the press, will very shortly be published.—I am, &c.

GEO. W. ROBERTSON, M.R.C.S., L.R.C.P.,
Senior Assistant, Bacteriological Institute, Grahamstown.

(*British Medical Journal, June* 23.)

NOTES ON OBSTETRICS.

BY M. BEDEL, OF DOYULE, CALVADOR, FRANCE.

I.—TYMPANITIS DUE TO PREGNANCY

Is only seen in cows at grass during the eighth and ninth month of gestation, and is tolerably frequent.

In the morning the cow is found down apart from the others, refusing all food, and with the left flank very much distended. The symptoms gradually disappear, and in the afternoon the animal is all right and feed-

ing. The next morning, however, she is found in the same state. The prognosis is favourable.

Treatment is very simple. The cow is brought up to the stable and kept absolutely without food for twenty-four hours, when light nutritious diet is given. A teaspoon full of hydrochloric acid to a pint of water is given every morning.

This condition is not mentioned by any of the classical authors on obstetrics,—Rainard, Saint Cyr, Violet, or Deneuborg.

II.—Vitality of Twins.

The author shows that in the case of 13 cows giving birth to twins there were 16 females and 10 males. Out of these 10 males 5 were born dead—*i.e.*,, one-half. Out of the 16 females 2 were born dead—*i.e.*, one-eighth. This with the cow appears to prove that the female is hardier than the male.

With 4 mares that gave birth to twins, in each case male and female, in every one the male was dead. In two cows the female survived and did well.

According to these statistics it would appear that with the larger domestic animals the chances are near four times in favour of the female living to the male.

III.—Twin Births.

The author notices with the cow the difficulty there is in pushing back the first calf in a cow of abnormal presentation. In three cows he has had breech presentation of the first calf, and in all he has found it impossible to push it back sufficiently to bring up the hind legs, but has had to effect delivery by passing lines above the stifle. The small size of the fœtus has in all these cows rendered this practicable.

On the contrary, in cows of anterior false presentation, he has had to have recourse to embryotomy.

IV.—Post-Partum Complications.

The author points out that there are a whole series of post-partum complications called after the organs attached, such as the brain (puerperal apoplexy and eclampsia), the spinal cord (paraplegia), uterus and peritoneum (metro-peritonitis), the articulations (arthritis), and hoofs (parturient laminitis). He considers that these local manifestations have a common origin, which he terms parturient septicæmia.

These have been all described as separate afflictions by Saint Cyr and Violet, but the author describes three other forms, viz., parturient gastro-enteritis, enteritis, and pneumo-enteritis.

Gastro-enteritis appears two to four days after calving. The muzzle is hot and slightly moist, temperature normal, left flank extended, eructations, and profuse, dark coloured, foul-smelling diarrhœa. The prognosis is not bad.

Enteritis appears the day after calving. The flank is not extended; on the contrary they are drawn up. The animal remains standing with arched back, constantly groaning and kicking at the abdomen with the hind feet. At the commencement of the attack there is much excitement. The muzzle is always hot, and there is grinding of the teeth.

Pneumo-enteritis.—Diarrhœa motions black, slight cough, obstruction of the lower border of the left lung, with diminution of the respiratory murmur below, supplementary respiration above. The animals remain standing up. This form is rare.

The author points out that in the above three forms of parturient septicæmia, although local treatment varies in each case, irrigation of the uterus is always necessary. He uses repeated injections of carbolic acid, 1 to 200.

Post-partum paraplegia.—The author attributes it also to parturient septicæmia, the toxines acting on the spinal cord. He considers that the toxines may also act on the brain, giving rise to parturient apoplexy

He quotes from Saint Cyr and Violet cases in confirmation of the theory cases in which cows have shown symptoms first of paraplegia, which the next day developed into parturient apoplexy.

Metritis and metro-peritonitis.—Saint Cyr and Violet state that in either of these complications in the mare the animal remains constantly standing. According to M. Bedel there are three forms :—

1. Alternatively getting up and lying down. Prognosis good. Out of eight cows seven recovered.
2. Standing. Two cows treated. One died the fourth, the other the sixth day.
3. Lying down. Two cows treated. One died the second, the other the fourth day.

These facts speak for themselves. In the case of the patients both getting up and lying down, the author is of opinion that there is only metritis or pelvic peritonitis. In the other two that there is general peritonitis.

(*Translated from Recueil de Médicine Vétérinaire, 30th July* 1900).

JOSHUA A. NUNN,
Vety. Lt.-Colonel, A.V.D.

JUNIOR UNITED SERVICE CLUB,
13*th Aug.* 1900.

FOOT-AND-MOUTH DISEASE AT RHYL.

ON Thursday, 9th inst., Mr. Griffith Griffiths, the new tenant of Tre-Llewelyn farm, in the parish of Rhuddlan, near Rhyl, found his cattle suffering from some illness, and he promptly called in Mr. Rowlands, veterinary surgeon, Rhyl. By Saturday the illness had so developed that Mr. Rowlands was able to diagnose it as foot-and-mouth disease, and a subsequent inspection on Sunday confirmed the opinion Mr. Rowlands had formed. He thereupon accompanied Mr. Griffiths to the police station, and gave information to Inspector Pearson. Inspector Pearson the same afternoon paid a visit to the farm, and satisfied himself of the accuracy of the diagnosis. On Monday Inspector Pearson called in Mr. Howatson, local veterinary surgeon to the County Council, who certified that twenty-three out of twenty-five were suffering from foot-and-mouth disease; the Board of Agriculture was immediately communicated with. As soon as the inspector received intimation on Sunday, he placed the cattle and the whole of the premises and occupants in charge of the police, and since that time the infected farm has been strictly isolated. On Monday afternoon Mr. Smart,

the veterinary inspector of the port of Liverpool, visited the farm and confirmed Mr. Howatson's certificate, with the result that on Tuesday Major Webber, chief constable of Flintshire, and Major Leadbitter, chief constable of Denbighshire, as the chief inspectors under the Contagious Diseases Animals Act, issued notices, warning cattle-owners and all concerned of the outbreak of the foot-and-mouth disease at Tre-Llewelyn farm, Rhyl, and stating that all movements of cattle, sheep, pigs, and goats is prohibited within the petty sessional divisions of Colwyn Bay, Isdulas, Isaber, Rhuddlan, Mostyn, Holywell, Caerwys, and the Denbigh borough. The order was communicated to the authorities of the Denbighshire and Flintshire Agricultural Show, which was fixed to take place at Denbigh on Thursday, and an intimation given that the exhibition of cattle, sheep, and pigs at the show would be prohibited.

Ten cows, three heifers, twelve calves, three pigs, and sixty sheep have been slaughtered, though the sheep were perfectly healthy. The only reason for the outbreak that can be given at present is that it must have originated from a somewhat foul and dirty pit in the yard, or that some of the germs of a previous visitation, about twenty years since, must have been disturbed by certain alterations that are being carried out in the shippen and out-buildings.

(*Rhyl Record and Advertiser.*)

THE VETERINARY PROFESSION AND THE GOVERNMENT.

At the Annual Conference of the National Veterinary Association held last week at Dublin, there was some plain and pointed speaking as to the injudicious and unsatisfactory way in which the veterinary profession has been treated by each successive Government of recent years. The President of the Association put forward a strong and unanswerable plea for adequate recognition of the claims of the veterinary profession at the hands of the Government, and several subsequent speakers emphasized these claims in a very forcible way. The first claim put forward on behalf of the profession was that the army veterinary surgeon should have a status proportioned to the importance of his services, and that the Army Veterinary Department should be more fully manned. It is very easy to see the force of this claim in the light of recent events. The great war in South Africa has given the War Office and the country some very valuable but very costly lessons, one of the lessons thus enforced being the paramount importance of mounted troops. When the war began, and the Australian Colonies offered assistance, the Imperial Government intimated that unmounted troops would be preferred; but by the close of the fateful week which witnessed the disasters of Stromberg, Magersfontein, and Colenso, the Government had fully learned the paramount importance of mounted troops, and then they gladly accepted the services of Imperial Yeomen, Mounted Bushmen, Strathcona's Horse, and the Highland Ghillie Corps, &c. Hence the importance also of the services rendered by the Army veterinary surgeon who is charged with the duty of keeping the horses "fit," and guarding against the introduction and spread of contagious disease among the "mounts." Only last week it was found that the chief remount depôt at Woolwich, which is under military control—and is not under the control of the Army Veterinary Department—was found to be a perfect

hot-bed of mange, so that all the horses there have had to be condemned, and a fresh depôt has to be established. Truly, therefore, in view of the fuller recognition of the value of mounted troops, the veterinary profession is fully warranted, and indeed called upon, to claim for the Army Veterinary Department a degree of recognition commensurate with the importance of their services in keeping remounts in a "fit" condition. Another department in which the veterinary profession demands the justice that has hitherto been denied is in regard to the inspection of meat. Most certainly the inspection of meat is a public duty which should by right be entrusted to the qualified veterinarian instead of being entrusted to "the plumber, the gasfitter, and the retired policeman." In the great duty also of safeguarding our flocks and herds and studs against contagious disease, the Government have very unwisely alienated the sympathy of the veterinary profession by giving mostly all the appointments as travelling inspectors to naval and military men and other job-hunters who had no scientific or practical knowledge whatever of live stock or live stock diseases. Another very grave mistake was the reducing of the Veterinary Department of the Board of Agriculture to a subordinate position called "the Animals Division," and the further appointment of a military officer as the head of that "Animals Division." The greatest service which the Board of Agriculture can render—or at least has yet rendered—to the country is the stamping out, and guarding against the reintroduction of, contagious disease. In the prosecution of this great and beneficial work the services of the veterinary profession are of incalculable value, and are, in fact, indispensable. And yet the Veterinary Department of the Board of Agriculture is not even called by that name, but is called "the Animals Division," and is presided over by a military officer who makes no pretensions to having any knowledge of veterinary science.

(*The North British Agriculturist, 29th August.*)

Review.

STABLE MANAGEMENT AND EXERCISE. By CAPTAIN HAYES. London: Hurst & Blackett, 1900.

The most valuable feature about the works of Captain Hayes is that in none of them does he romance,—he never makes a statement that he does not believe to be true, and which he almost always proves from his own experience. Once an author of practical works gains such a reputation, a reader has no hesitation in adopting the advice given by that author, nor has a teacher any hesitation in recommending his students to read that work.

This book of some 400 pages, with numerous illustrations, to use a well-hackneyed expression, "fills a long-felt want," not only in the libraries of horse-owners, but of all those who have anything to do with horses.

It is said that a woman should not be allowed to marry until she is thoroughly acquainted with all the detail of housekeeping: be that as it may, but an even more important axiom is, that no one should own a

horse until he or she knows all about stable management—a lack of knowledge of either of these is sure to lead to worry and loss of money.

Stable Management and Exercise gives full instructions about the feeding, watering, grooming, clothing, and exercising of horses, and also as to cleaning of harness and carriages, so that no one who reads the book can be ignorant of any detail of the work.

Though having a very high opinion of Captain Hayes' statements, there are some things in which we differ; for instance, he says that horses' feet should not be washed. Now we beg to differ with him, and without entering into any argument will quote an extract from a paper read in Dublin at the National Veterinary Association Meeting by Mr. Byrne, F.R.C.V.S., in which he says :—"A horse's feet should always be washed after exercise. Many a buried nail, a bruise, or an over-reach has been promptly detected in this way which would otherwise have remained undetected."

Again we are astounded to read in the chapter on *Stable Servants* under *Commissions :* "Ten per cent on the bills of veterinary surgeons is not uncommon, and 5 per cent is very reasonable according to stable opinion," and "a shilling on each shoeing, and sixpence on removes."

We fear that Captain Hayes would have little or no margin of profit to himself if he were to buy almost any practice in Britain, and give commissions of that size, or even at all now-a-days. These two statements of the author are not in accordance with the general custom of veterinary surgeons or master farriers, and the insinuation that such is the case is, to say the least of it, unfair to a large body of professional men.

Having had our "fling" at Captain Hayes, we can only conclude by strongly recommending every one connected with horses to read and remember the valuable information contained in *Stable Management and Exercise.*

Army Veterinary Department.

Vet.-S. MacDonald arrived in SS. "Cervona," goes to East London.
Steel to Port Elizabeth.
Makin arrived from New Orleans, to Maitland.
Crone arrived in SS. "Anglo-Chilian," to Durban.

Cape Town, July 21.

Major Pitchford, Natal Volunteer Veterinary Corps, left Cape Town in the "Oratava" for England on August 9th, invalided home; C.V.S. Vulliamy comes home in same ship.

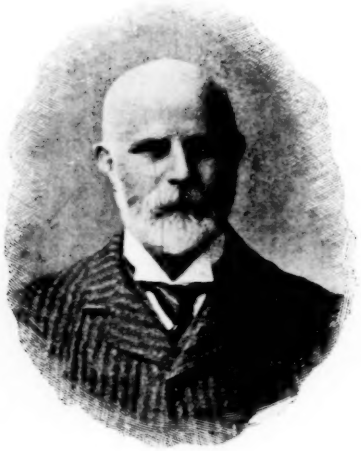
From the *London Gazette :*

War Office, Pall Mall, Aug. 21st.

Vet.-Lieut. J. Loughlin, 1st Life Guards, to be Vet.-Captain.

A.V.D. Officers in China.

Vet.-Capt. E. H. Hazelton.
Vet.-Lieut. W. A. Pallin with Section Field Hospital.
Vet.-Lieut. H. J. Axe, Cavalry Brigade.



THE LATE SIR HENRY SIMPSON, J.P., F.R.C.V.S.

Obituary.

SIR HENRY SIMPSON, J.P., F.R.C.V.S.

It is with deep sorrow that we have to record the death of Sir Henry Simpson, which took place under the saddest circumstances at Datchet on Friday, the 17th of August.

It seems that Sir Henry, as was his usual custom, went out in the early morning for a walk by the river before breakfast, and not reappearing after the lapse of some hours, fears were awakened that something might have happened to him, and a search was instituted, with the result that his body was found in the river near by his estate, and the opinion is that, suffering from heart affection, as was known, he had fainted and fallen into the river and been drowned.

Sir Henry was the son of Mr. George Simpson, Veterinary Surgeon at Windsor, and after studying at the London College graduated as a M.R.C.V.S. in 1861, and then joined his father in Windsor, and commenced his most successful and brilliant career, not only as a veterinary surgeon, a judge of horses, but as a good citizen of the Royal Burgh.

In 1881 he was elected a Vice-President of the Royal College of Veterinary Surgeons by the Council of the profession. In 1882 he was elected a member of that Council by the members of the profession; at the expiry of his term of office in 1886 he was again elected to the Council, and in 1887 he was elected President of the R.C.V.S.; and in 1890 he was for a third time elected a member of Council. During his period of office as a representative of the profession, either as President, Vice-President, or Councilman, he was indefatigable in his exertions to promote the welfare and interests of his profession, and its members have much to thank him for.

Not only did he work hard at his professional duties and at his professional legislative duties, but he took a deep interest in the affairs of his native town Windsor, and for many years was one of its Town Councillors, and in 1887 became Mayor of Windsor.

That year being the Jubilee of Her Gracious Majesty's reign, his duties as Mayor were very great, but so successfully did he carry them out that Her Majesty conferred upon him the honour of Knighthood, and he was still further honoured by being one of Her Majesty's guests at the State Banquet which was given at Windsor Castle to celebrate Her Majesty's Jubilee. One seldom met a more charming and courteous man, and we, who met him frequently at meetings of the Council of the Royal College of Veterinary Surgeons, were always sure that, whether he were in agreement with or opposed to any matter under discussion, his opinion was one well worthy of consideration, as it was always unbiassed, and never given without being well thought out.

Sir Henry was Veterinary Surgeon to Her Majesty the Queen, was a Justice of the Peace, and was deeply interested in the work of the Royal Commission on Horse-Breeding and in the Hunters Improvement Society. He also held the appointment as Official Measurer to the Polo Club.

To Lady Simpson and the other members of his family we tender our sincere sympathy, and feel sure that we express the feeling of the whole profession when we say that we all deeply regret the loss of one of our leaders.

CONTAGIOUS DISEASES ANIMALS ACTS, 1864 AND 1899.

SUMMARY OF RETURNS OF OUTBREAKS for the Four Weeks ending 18th August 1900.

ENGLAND AND WALES.

Swine Fever.	Glanders (including Farcy).	Rabies.	Anthrax.	Sheep-Scab (for month of July).
Outbreaks 117 Slaughtered 587	Outbreaks 84 Attacked 138	None.	Outbreaks 22 Attacked 56	None.
SCOTLAND.				
Outbreaks 2 Slaughtered 9	Outbreaks 0 Attacked 2	None.	Outbreaks 16 Attacked 23	None.
IRELAND (Four Weeks ending 11th August).				
Outbreaks 26 Slaughtered 268	None.	None.	None.	Outbreaks 19

Communications, Books, Journals, &c., Received.

Agricultural Journal (Cape of Good Hope); Berliner Thierärztliche Wochenschrift; La Clinica Veterinaria (Milan); Deutsche Thierärztliche Wochenschrift; Tannoform in Veterinary Medicine (March); The Sanitary Journal; Scottish Medical and Surgical Journal; Veterinary Record; La Riforma Veterinaria; Le Mois Scientifique (Paris); L'Echo Vétérinaire (Liège); Annales de Médecine Vétérinaire (Brussels); Johns Hopkins Hospital Reports; Journal of Comparative Medicine and Veterinary Archives; Recueil de Médecine Vétérinaire; Gazette Médicale de Paris; Modern Medicine; Johns Hopkins Hospital Bulletin.